THE QUARTERLY MAGAZINE OF THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY
VOL. 12/NO. 4 SPRING 1974

Terra

WHERE HAVE ALL THE POPPIES GONE?

Have An Orient September

There are still a few openings for the ORIENT ADVENTURE, September 7–21, so hurry to call Fran Kellough (749-3583) with your reservation.

This special trip includes chartered round trip jets, deluxe hotels, two meals daily and lots of other essentials and extras. Like to shop? Your baggage allowance is 100 pounds! The itinerary is right: Tokyo, Kyoto, Hong Kong, and extra optional Bangkok. The price is right: $1068. The time is right: beautiful season for visiting the Orient. Right on.

A Museum Summer

Summer is almost here, school is almost out—time to enjoy Museum activities special to this sunny season!

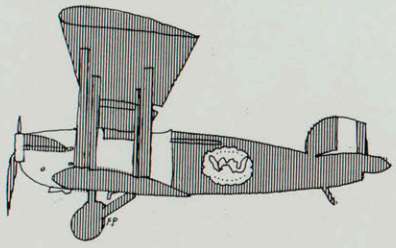
SUMMER SALLIES: This outrageously successful program for Grades 1 through 6 is in its 8th year. Open to children of Alliance members only, the classes will meet July 17, 19, 24, and 26 with both morning and afternoon sessions. The subjects to gladden any budding naturalist's heart are Entomology (Grade 1), Mineralogy (2), Herpetology (3), Ichthyology (4), Ornithology (5), and Paleontology (6). Fran Kellough, who directs the program, reminds us that only 25 children are accepted in each morning and afternoon class, so to avoid being on a waiting list, get your reservation in now! While children attend class, mothers may enjoy "Flying Carpet Tours" led by docents, including Cenozoic, Pre-Columbian, South Pacific, and Arms and Armor Halls.

SATURDAY FILMS: For 18 months there has been a Saturday movie shown at 2 p.m. in the Jean Delacour Auditorium to an audience of about 200. This program, which was initiated by Richard Lipscomb, Chief of the Education Division, supplements the 23-year-old monthly film series which the Museum sends to 28 libraries, colleges, and recreation halls in addition to a Museum showing one Saturday a month. The Museum owns most of the films and rents some of the others. The public is invited to attend, free of charge; children under 15 must be accompanied by an adult. Auditorium doors open at 1:30 p.m.

The summer schedule follows:

June 1: **Jane Goodall's "The Wild Chimpanzees"**
June 8: **"Grizzly"**
June 15: **"Armies of the Ant"**
June 22: **"Reptiles and Amphibians"**
June 29: **"Ascent of Man: The Drive for Power"**
July 6: **"The Fabulous Country"**
July 13: **"Tops," "Norman Rockwell's World," "Solo" (mountain climbing)**
July 20: **"Lost World" with Wallace Beery**
July 27: **and each Saturday in August: "The Search for the Nile," Parts 1–6.**

SUNDAY CONCERTS: Every Sunday at 2:30, following the Museum tradition of many years, there will be a concert in the Jean Delacour Auditorium. The music is quite varied. For instance, on June 10 the Arriaga Quartet will play Smetana and Beethoven, and on June 17 the Los Angeles Saxophone Quartet will perform.



"First Round-the-World Flight"

Four Douglas airplanes began their historic flight around the world from Santa Monica on March 17, 1924, and ended there on September 25, 1924. To commemorate this event, the Museum has installed in the Library Foyer, ground floor, a display which includes photographs, maps, equipment, engine, and personal mementos given to the crews. (See article beginning page 26.)

The article about General Harrison Gray Otis on page 22 of this issue is a timely reminder of the lengthy interest of the Otis family in the Natural History Museum. The General began his collection of military items in the late 1800s; the interest was spurred by his service in the Philippines during the Spanish-American War. General Otis died in 1917, and in 1921 the Otis family donated the collection to the Museum.

Because of the Otis gift, and because of the many donations from William May Garland and his descendants, the Museum today has one of the nation's finest arms collections.

Terra®

The Quarterly magazine of
THE NATURAL
HISTORY MUSEUM
of Los Angeles County
VOL. 12/NO. 4 SPRING 1974

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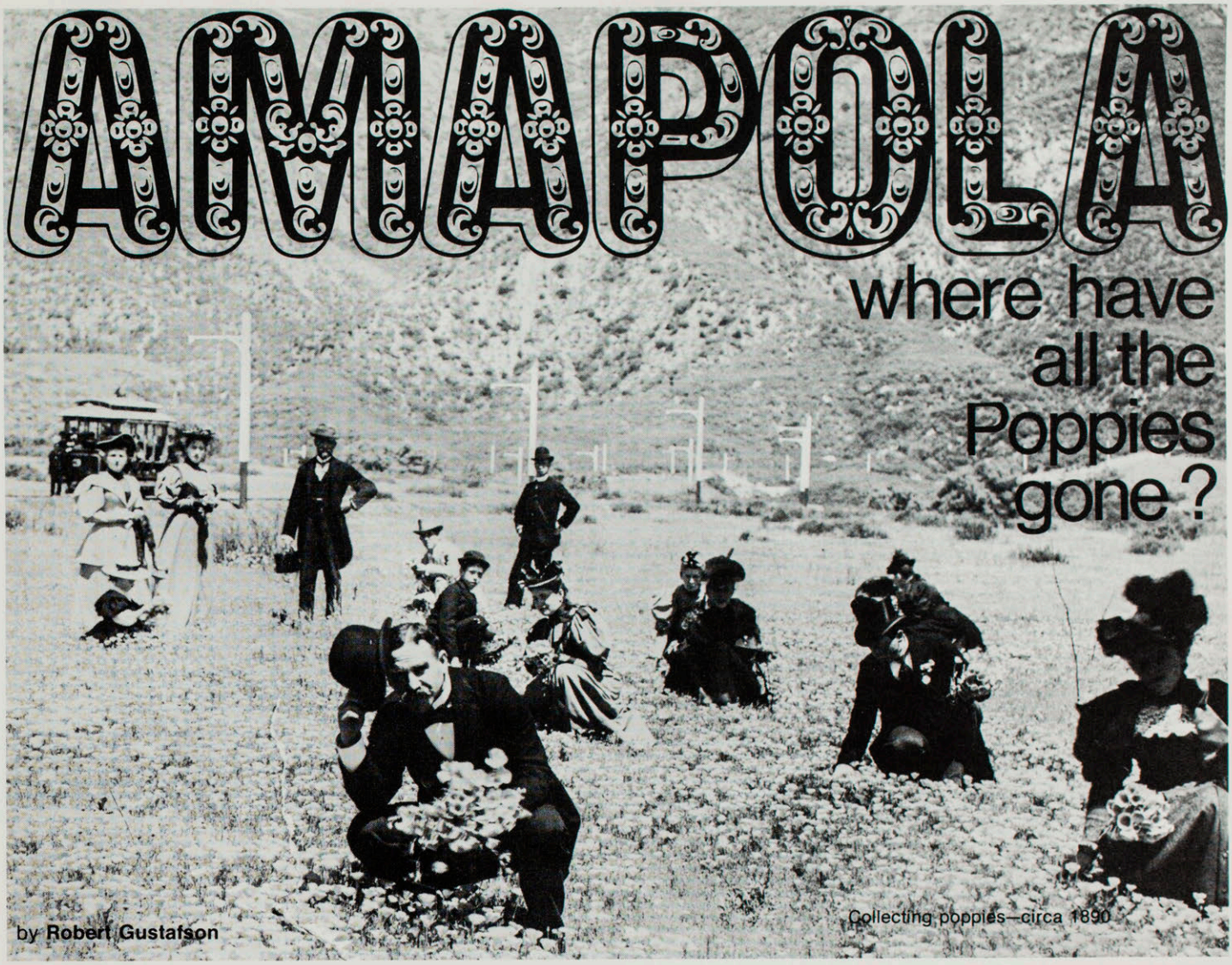
AMAPOLA

where have all the Poppies gone?



Collecting poppies—circa 1890

by **Robert Gustafson**

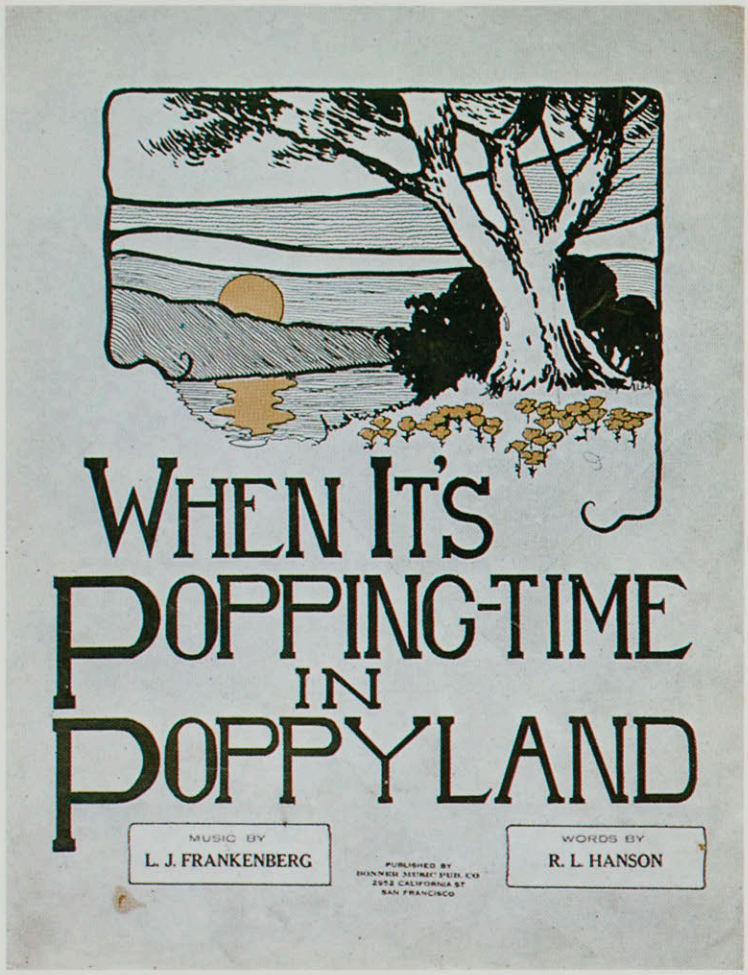
"Amapola, my pretty little poppy . . ." The year was 1942 and every big band, jukebox and radio station across the country was playing Helen O'Connell's recording of the song inspired by California's golden poppy. This spring annual with its satiny orange petals has become one of the most celebrated of North American wildflowers.

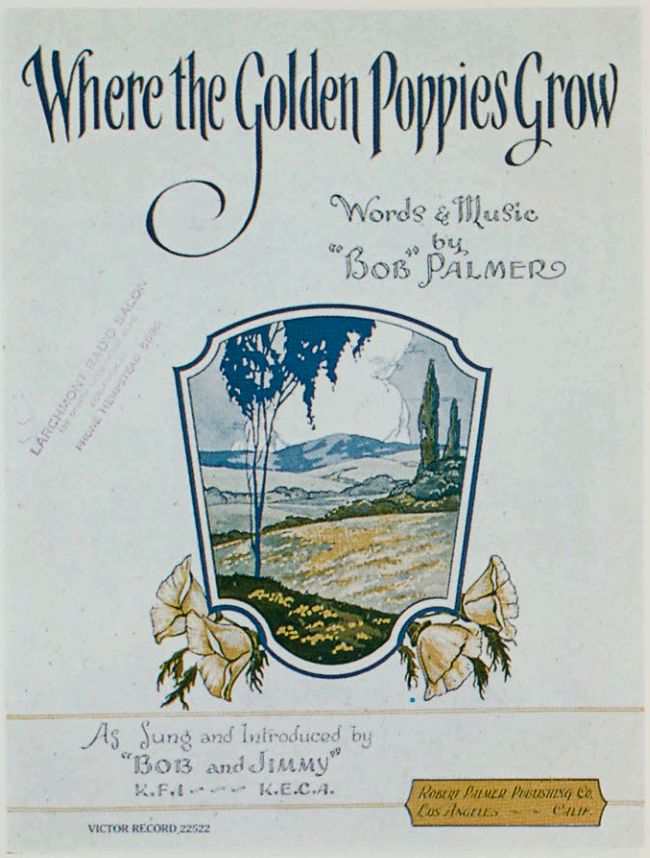
The poppy's reputation began well over 300 years ago, in the journals of the early Spanish mariners. Since then many accounts have been written about the "amapola," whose vast fields must have been one of the dazzling botanical wonders of the old west.

The discovery of the golden poppy has an interesting history, especially since it is named after a Russian explorer-naturalist of the 19th century. Although Cortez, Cabrillo and Drake visited the California coast prior to the 1800s, it is doubtful that any of them were curious about this plant, if indeed they saw it at all. In 1791 the Spanish explorer, Malaspina, visited San Diego and Monterey, accompanied by two botanists, Haenke and Nee, who may have also seen the poppy. However neither sent any specimens to Europe for identification. The following year, Archibald Menzies, a botanist-surgeon aboard the English ship, *Discovery,* visited the Monterey peninsula, but again no specimens appear to have been collected. In April of 1806, a German botanist, Langsdorf, accompanied the Russian commander, Rezenoff, on the brig *Juno* as far as San Jose. He collected many plants, possibly including the poppy, but due to poor drying facilities aboard the ship all of his specimens mildewed and were subsequently scrapped. It wasn't until 1816 that a Russian expedition under the command of Otto von Kotzebue made its way down the Pacific coast. On the ship *Rurik* were Adelbert von Chamisso, the resident botanist, and Johann Frederick Eschscholtz, a surgeon-naturalist. These two men secured many plant specimens, among them the poppy, which Chamisso named *Eschscholzia* in honor of his companion. And so it was the golden poppy found a permanent residence in the annals of botanical nomenclature.

The genus *Eschscholzia* is comprised of some eight to ten species, most of which bear a superficial resemblance to one another. *E. californica* is by far the most abundant, and certainly the most variable, growing in a wide variety of habitats. It ranges from the Columbia River in Washington, south to northern Baja California. Other species are less frequently encountered and tend to have yellow flowers rather than orange.

Nine other genera of poppies native to the state are usually ignored by comparison to their famous relative. Of these nine, five are endemic or near-endemic, giving California the highest percentage of poppies native to North America. Two additional genera introduced into cultivation have escaped and become naturalized in some areas.



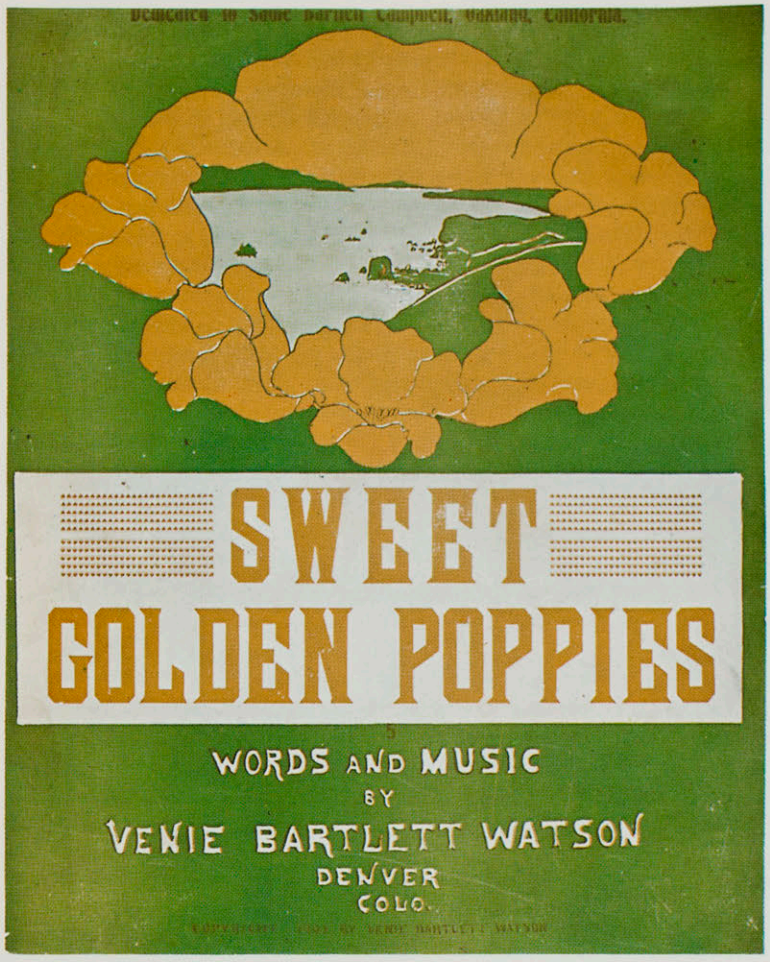


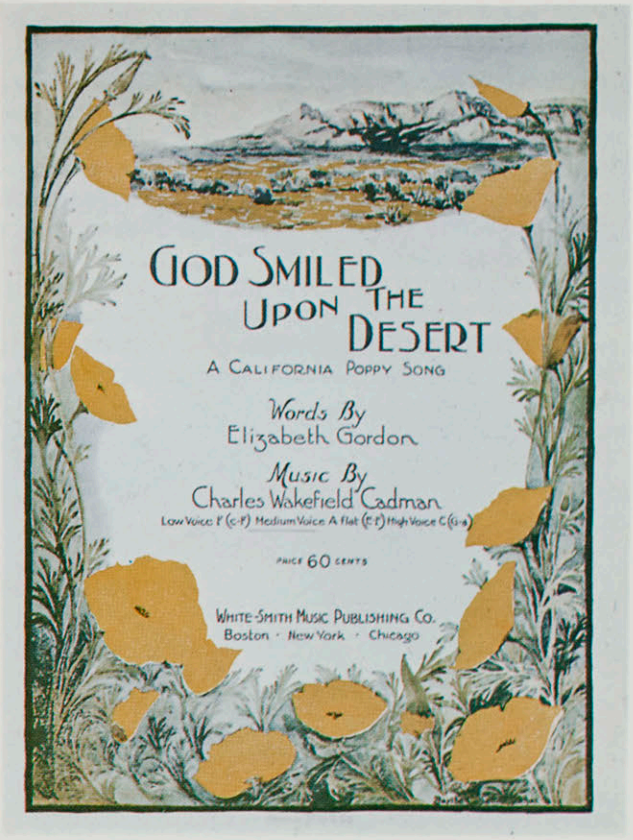
Turn of the century sheet music—Courtesy of Miss Peggy Christian

Cream Cups—*Platystemon californicus* Photo by Laurel Woodley

Prickly Poppy—*Argemone munita* Photo by Laurel Woodley

Matilija Poppy—*Romneya coulteri*





Eschscholzia a desert species
Photo by Laurel Woodley

Wind Poppy—*Stylomecon heterophylla*

Tree Poppy—*Dendromecon rigida*

Tree poppy, *Dendromecon rigida,* is one of the most outstanding shrubs of California's chaparral, occuring in both the Coast Ranges and the Sierra Nevada. Another species is confined to the Channel Islands. Chrome-yellow flowers are vividly contrasted against the gray-green leaves, the blooming period becoming especially spectacular in the aftermath of a fire.

Bear Poppy, *Arctomecon merriamii,* is a very rare perennial of the Death Valley region, with long hairy leaves arising from a stout tap-root. Large white flowers appear in the spring.

Wind poppy, *Stylomecon heterophylla,* is an erect annual with yellow sap, growing in the Coast Ranges and Sierra Nevada foothills south to northern Baja California. Its orange-red petals are basally marked with a large purple patch. While not abundant, it may be encountered on grassy or brushy slopes below four thousand feet.

Cream Cups, *Platystemon californicus,* an exceedingly variable annual, is found throughout most of California west of the Sierras and also Arizona, Utah and Baja California. This low, somewhat sprawling annual with cream to yellow flowers is common on clay soils and sandy places, especially after burns and in disturbed areas.

Prickly poppy, *Argemone,* is represented by two species in California. These glaucous spiny perennials with orange or yellow latex bear large crinkly white flowers. *Argemone corymbosa,* a desert inhabitant, blooms in late spring, while *A. munita,* with a widespread distribution, flowers during the summer. Both plants are difficult to handle because of their fierce armature and one has become a troublesome weed in some agricultural zones.

The slender-stemmed *Meconella,* a genus of three or four species of the Pacific States, is low annual of chaparral or foothill woodland. Small white or yellow flowers make the plant difficult to recognize in the field.

Canbya candida, a diminutive, tufted annual of the western Mohave Desert, ranks as one of California's tiniest plants and the smallest member of the poppy family. It seldom attains more than an inch in height with flowers not more than a few millimeters across.

In contrast to this ephemeral pincushion is the Matilija poppy *(Romneya coulteri* and *trichocalyx)* which is native to ravines and stream beds from Santa Barbara to San Diego Counties. These half-shrubby perennials with bitter juice and creeping root-stocks bear giant white flowers up to nine inches across. Thomas Coulter, the first botanist to cross the desert and reach the Colorado River, discovered this poppy in 1831 and named the genus after F. Romney Robinson, an Irish astronomer who was a close friend of his. Matilija was one of the Chumash rancheria under the jurisdiction of Mission San Buenaventura. The meaning of the word itself is unknown but the poppy had medicinal values for the Indians. It is surmised that *Matilija* is probably the Chumash name for the plant.

Western Poppy, *Papaver californicum,* is a slender annual, growing in the Coast Ranges from Marin to San Diego Counties. Its brick-red petals are marked with a greenish basal spot. It is closely related to the opium poppy, *Papaver somniferum,* which is grown as an ornamental and occasionally escapes cultivation. Opiates are dispersed throughout the genus but *somniferum* is the only species from which the drug is commercially produced. Seaside poppy, *Glaucium flavum,* and Mexican tulip poppy, *Hunnemania fumarifolia,* are garden escapees and have become naturalized in some areas of the state.

Perhaps no other poppy has been called by so many names as California's state flower. In the Botanical Register of 1828 John Lindley proposed a name change for the genus *Eschscholzia,* advocating *Chryseis* instead, because in his words, "I anticipate little objection to the substitution of so harmonious a word as *Chryseis* for the barbarous combination of conflicting consonants found in the word *Eschscholzia."* Rafinesque proposed the name *Omonoia* in his *Flora Tellurium* of 1836. A considerable amount of confusion has arisen over the correct spelling of the genus *Eschscholzia,* especially since the man for whom it was named is Eschscholtz. The accepted botanical spelling does not include a "t."

The flower has been called Gold Poppy, Orange Poppy, Crocus Poppy, *Copa de ora, amapola, calce de oro, dormidera, torosa,* and *ama-flores.* Even the Indians had their names for this plant: *a-tow-sha-nut* (San Luis Rey), *tesebal* (Coahuilla), *tes-an-aht* (Serrano) and *toe-shu-le* (Mendocino).

It has been thought that perhaps "Golden Gate," a name which first appears in Fremont's *Geographical Memoirs of California* (1848), referred to the poppies which formerly grew on the hills surrounding the entrance to San Francisco harbor. Spanish mariners gave the name "Cape las flores" to Mts. Wilson and Lowe, at whose base thousands of acres of poppies once grew in such profusion that the color could be ascertained many miles at sea, an indication to the sailors that they were opposite mission landings.

California was first to validly proclaim a state flower. The question of adoption was brought to light at the monthly meeting of the California State Floral Society in September, 1890. By October the selection of candidates included the Matilija Poppy, the Mariposa Lily and, of course, the Golden Poppy. During November the "poppy platform" had received considerable attention from the public, so the nominations made at the October meeting were formally confirmed.

For some reason, known only to the Secretary of the Society, a preliminary vote on the issue of the state flower was taken up at the Santa Cruz Fruit Growers Convention with *Eschscholzia* receiving wide acclaim. Thereafter the Society cast their votes, with the final tally giving a landslide to the golden poppy. The press enthusiastically endorsed the selection with some of the most florid editorials that have ever appeared in print. Oddly enough the legislature had not officially recognized the flower so that it might appear upon the Great Seal of the state. Several attempts to have the bill passed and signed into action were futile endeavors. Finally, after a struggle of almost ten years, *Eschscholzia* was officially adopted as the state flower in 1903.

Around the turn of the century the poppy motif became a commercial craze. A variety of "poppy" brands and motifs flooded the market, encompassing buns, baking-powder, magazine illustrations, posters, books, wall plaques, china, needlework, book plates, leather, bronzes, wallpaper, jewelry and ceramics. All were decorated with California poppies. Poets sang its praises, artists painted its portrait, and legends recounted its mystical powers. Songwriters had a field day, and if their melodies didn't quite measure up to current musical standards, they at least pointed out the enormous popularity of this flower which caught the imagination of old and young alike.

An ethnobotanical look at *Eschscholzia* reveals some interesting uses by the

Poems
By Famous California Poets

Plain Language to Bret Harte

But what kills me plumb dead
Is to see where he's writ
That our poppies is red,
Which they ain't red a bit,
But the flamingest orange and
yellow,—
Oh Bret, how could you forgit?

Chas. S. Green

God's Gold

This Golden Poppy is God's Gold;
The gold that lifts, nor weights
us down,
The gold that knows no miser's hold,
The gold that banks not in the town,
But careless, laughing, freely spills
Its hoard far up the happy hills—
Far up, far down, at every turn—
What beggar hath not gold to burn?

Joaquin Miller

In Poppy Fields

Here the poppy hosts assemble,
How they startle, how they tremble;
All their royal hoods unpinned
Blow out lightly in the wind.

Men that in the cities grind
Come before the heart is blind.
Here is gold to labor for;
here is pillage worth a war.

Edwin Markham

Rancho de San
Pascual—Pasadena

Indians and early Spaniards. It seems difficult to visualize this plant as an ingredient in a hair pomade, but it was added in quantity to melted bear's grease; heated and strained, the resulting oil was supposed to encourage a luxuriant growth of hair as well as give it a satiny luster (hardly what we would call the "dry look").

Another kind of hair-dressing was made by Spanish-Californians, who steeped the leaves and flowers in hot olive oil and then scented the concoction. San Luis Rey Indians used the leaves for "greens" and also chewed them with various kinds of gum. Other uses included that of an emetic, to reduce milk flow, as poultices applied to open sores and ulcers, as an anodyne for toothache, and to relieve colic.

The poppy is reputed to have soporific and analgesic properties, the drug used as a morphine substitute for headache and insomnia. *Eschscholzia* is the third highest producer of opiates in the poppy family but is considerably lower than *Papaver somniferum,* and for that reason has never been grown commercially. However it has been under cultivation since 1826, and since that time many varieties have been developed, ranging in color from pure white to dark red.

Where have all the poppies gone? There was a time in the not so distant past when they grew in such abundance that miles of virgin territory were covered by a saffron sea. Cape Las Flores was one such area—a lost landmark totally obliterated by a creeping megalopolis. Rancho de San Pasqual, known today as Pasadena, was once part of this vast mesa whose poppy fields were unsurpassed. So vivid were these fields that Spanish mariners named this glowing mass *"La Tierra de Fuego"* (Land of Fire). Early Spanish-Californians called it *"La Sablouera de San Pasqual"* (Altar-cloth of St. Pasqual). This man, one of the favorite saints of Spanish peasants, was born in 1540 and spent his adolescent years tending sheep. Later he became a devout follower of St. Francis of Assisi. It was his habit to walk among the shepherds in the field and say mass on hillsides, with a carpet of flowers for an altar. The old *camino real* crossed this site as it left Mission San Gabriel Archangel in the east to Mission San Fernando Rey de Espana in the west. Today nothing remains of the "land of fire," even vacant lots have all but disappeared. Occasionally in the foothills of Kern County spectacular displays of *Eschscholzia* may still be witnessed in the aftermath of winter rains. But these dwindling fields stand in mute testimony to one of vanished glories of old California.

Robert Gustafson is a botanist with the Natural History Museum of Los Angeles County. He has become justifiably lauded for his fine photographs of California wild flowers. This is his third contribution to TERRA.

Watercolor by Paul de Longpre

A Chamisso's Original sketch, 1820

Eschscholtzia californica Ch

The Little Bird That Was

by **Elizabeth J. Wright**

In today's ecology-minded world, the extinction of a species is regarded with profound and publicized regret. The great auk, the carrier pigeon, the Carolina Parakeet, are with us no more. Sadly, this is true of another bird which harmed no living creature, never upset the ecological balance of nature and was a boon to womankind during the late eighteenth and nineteenth centuries.

Nature lovers may take heart, however, for this was not a feathered friend but a needlework tool called a sewing bird. A description comes from Webster's New International Dictionary: "Sewing Bird—a clamp that can be fastened to a table edge, having a birdlike beak to hold work to be sewed by hand." These attractive devices were also referred to as hemming birds, embroidery birds or grippers, and they enjoyed great popularity as sewing aids for nimble and not so nimble-fingered needlewomen.

The sewing bird's evolutionary process may be traced to clamps used as early as the seventeenth century. The clamp was a device which when screwed onto the edge of a table would secure one end of a piece of fabric being hemmed. Uncomplicated and inexpensive, clamps were a boon to women burdened with hand sewing—and that meant most women until the beginning of the twentieth century. Hand hemming was extremely difficult because of the weight of such articles as sheets, tablecloths, bedspreads, and wide skirts. Clamps from the Georgian period in England remind us of human ingenuity: a cylindrical clamp has a removable top with space to hold powdered alum or French chalk. During the long hours of sewing the overworked hands of the seamstress could perspire and stain the material or rust the needles, hence the use of powders. Box clamps, designed to hold linen or other heavy cloth, were often topped with a pincushion to which delicate fabrics might be pinned. Other clamps included needle holders in their designs. While clamps were usually fashioned of polished olive or similarly-grained wood, some were made of steel.

By the end of the 18th century sewing clamps existed in considerable quantities in England, although their distribution appears uneven. Exclusive tourist resorts such as Bath or Tunbridge Wells offered these novelties, but they appear little known in outlying areas.

Packaging innovators frequently boxed a particularly handsome clamp in a velvet or satin-lined container. A youthful swain might purchase one as a love gift and give it to his intended many months before the wedding. The ensuing months were spent by female members of the bride's family sewing themselves into an eighteenth or early nineteenth century snit.

The next development in the evolutionary line leading to the sewing bird can be traced to the steel toymakers of Sheffield, Birmingham, and Wolverhampton. Utilizing small iron animal figures, some from their regular stock, they mounted them on clamps, thus producing fetching and customer-appealing items of household use.

There were other designs, some strictly utilitarian, some baroque, yet it was not until the emergence of the sewing bird that the clamp experienced its metamorphosis. Now the clamp was of secondary concern; the bird of primary importance. Perched airily atop the clamp, the metal bird was fitted with a strong spring underneath its body. A deft press of the fingers on the tail could cause the beak to open saucily. Into this beak the lady would insert an item to be hemmed and when the firmly-gripping beak closed her sewing companion could be relied upon to cooperate fully. Whether of bronze, iron, tin, steel, brass or pewter, the birds delighted their owners. The delicate modulation of the body, the wings—sometimes folded, sometimes in flight position—the perky little tail . . . these were altogether irresistible objects.

Sightings of bronze birds in the late eighteenth century record them to be with or without markings, delicately modelled and apt to carry a pincushion or spindle on their backs. At a later period an occasional bird could be seen fashioned of hollow metal, even silver.

While popular in England, proliferation of the species was noted in the United States by the beginning of the nineteenth century. Americans, given to nicknames, called the little bird-clamp a "gripper." Throughout the east blacksmiths and cutlers busily contributed to the gripper's population increase. Highly individualized designs developed.

By mid-nineteenth century flocks of these sewing birds were emerging from factories, particularly in the Connecticut area. Characteristic of one genus is a cushion, glued to an ornamental cup soldered onto the clamp and which serves as a tiny pincushion. A bird dated 1853 carries upon its back an emery ball. Birds incised with feather designs upon the upper back and wings were made, as well as birds with incised feather designs under the body.

The migrations of the sewing bird can be attributed to the genius of American advertising acumen. A splendid example is the advertising copy of C.F. Sloan, of Middletown, Connecticut, and dated 1851. Beneath a drawing of two ladies sewing, one upright and spry, the other crouched wearily over her handwork, the following copy appeared:

LADIES SEWING BIRDS

These useful articles are introduced to the public by the inventor and especially recommended to the notice of the Ladies, for whose particular use they are intended. Something of the kind, has ever been needed to hold or fasten their needlework while engaged in sewing. Many a fair form is ruined and made round-shouldered by their position while at work, as well as health impaired by sitting in such an unhealthy posture. Improvements are constantly being introduced to lessen the labor of men, but little or nothing has been done to alleviate the burden of the other sex; this article however, will greatly relieve while it will facilitate their work. The Sewing Birds have been used by many Ladies in New England, and has met with universal approbation. They may be had by the subscriber by wholesale, in every variety of style, and the small price at which they are offered must recommend them to general use.

In the above Mr. Stearns claims to be the inventor of the sewing bird and a printed warning on the paper reads: Patent Applied For. However, Sylvia Groves, in her concise book *History of Needlework Tools* states on page 59:

"The most ingenious of all sewing clamps, and far less common, is the hemming-bird, an invention of early Georgian days that did not come into general use until the beginning of the 19th century." Perhaps, in his zeal to promote feminine fitness, Mr. Stearns availed himself of literary license.

A bit of advertising cribbing came out two years later. The Hartford Times for June, 1853, also pictures two ladies sewing at a table. The one on the right is well-postured and vigorous and uses a sewing bird. The other woman sags wearily over her handwork. This copy reads:

LADIES' SEWING BIRDS

The latest invented and most useful article for the use of ladies that can be found. The above engraving tells the whole story of its use and usefulness, and health preserving property. Look at the contrast of the human form where it is used and where it is not, and then call on or send your orders for one or more at the Stationery & Fancy Goods Saloon of

Elihu Geer, 10 State Street

For sale by the dozen at the manufacturer's price.

As the western movement in America gained momentum the sewing bird's territory was vastly increased. Traveling with vigilant mistresses overland across the mountains and prairies to promised lands, or braving the turbulent sea voyage around the Horn, the little birds found themselves in strange new surroundings. One sighted by the author in far-western Astoria, Oregon is designated "embroidery bird" and perches on a dining room shelf at the Clatsop Museum housed in the historic Flavel Home. This bird is of tin, heavily incised, with a place on its back where a pin-cushion used to be. A large, intact pincushion of faded, mauve-colored velvet rests under the breast. The clamp is decoratively incised.

Adobe de Palomares in Pomona, California, can boast three needlework clamps:—an iron device mounted on a clamp which clasps cloth readily; a wooden clamp, on one end of which is pasted a touching sentiment, while the whole thing is topped off by a plaid-covered pincushion edged with grosgrain ribbon tied into a jaunty bow; and a true sewing bird, quite similar to the one sighted in Astoria.

While the American version of the sewing bird was increasing in popularity, in 1830 England spring-action sewing clamps with very different motifs had caught the public fancy. Dolphins, cupids, butterflies, swans and other fantastic creations of the most elaborate character emerged as toppings on the sewing clamps. Newer models in America followed this trend. The Smithsonian Institution in Washington, D.C. includes in its collection a snapping fish,

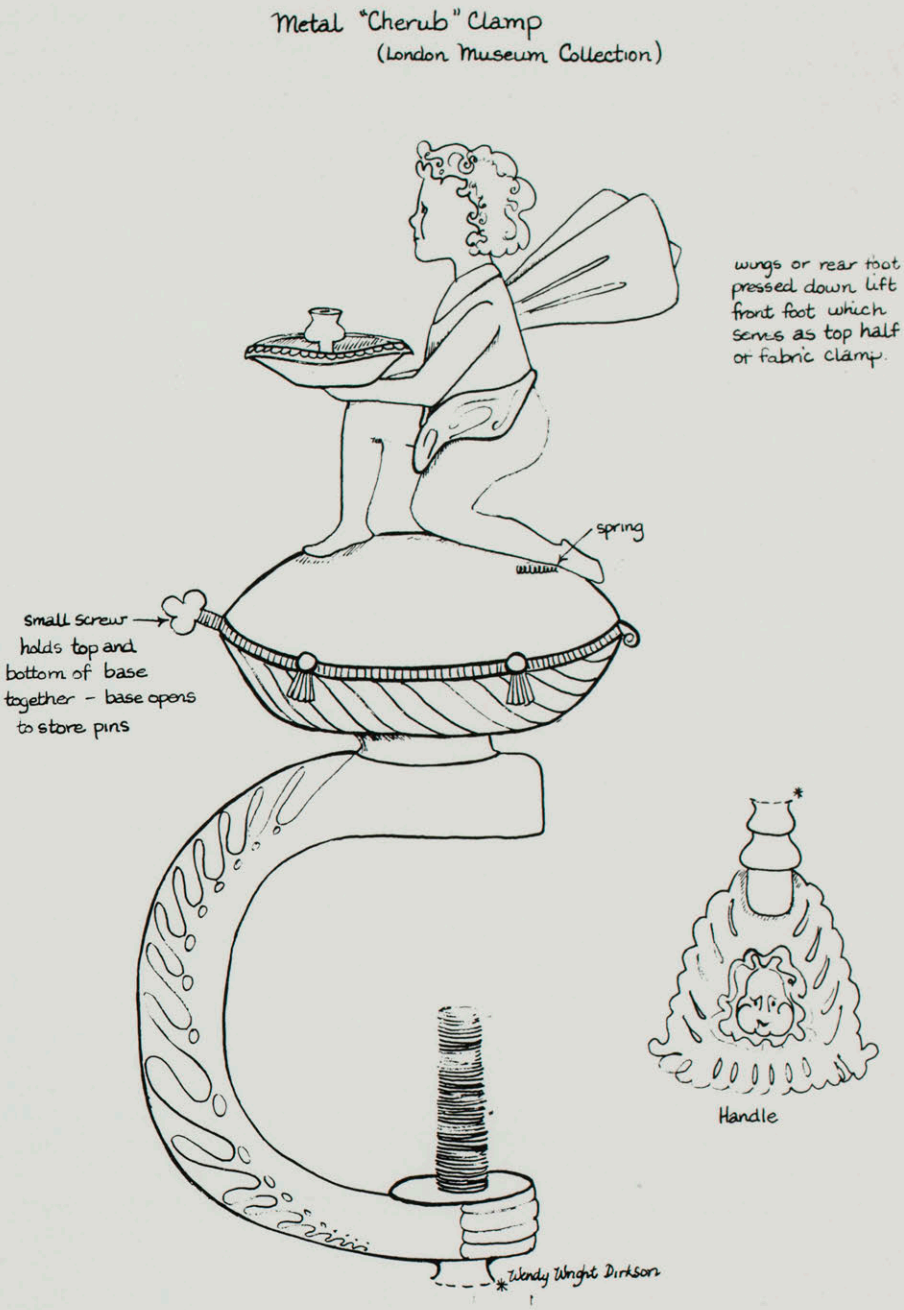
a frog poised precariously on a branch and a dolphin ready to lunge at an unsuspecting piece of fabric.

The London Museum, in its concealed collection, can show two most extraordinary spring-action sewing clamps:—a cupid in full regalia, and what must be the most incredible sewing clamp in preservation—the Brighton Trifle. Only the accompanying illustration can give a faint idea of its splendor.

Inevitably, a Victorian reaction set in, and during that period sewing clamps in England reverted to a staid, functional form. An occasional baroque clamp might appear in trade expositions during the early part of Victoria's reign, but the end of the ornate clamp was in sight. The collecting fever of the ever-traveling English had to be satisfied with sensible souvenir clamps of plain or polished wood. Occasionally, a small engraving, discreet advertising for a resort, would be printed or glued on the clamp's chaste surface.

However, in the land of Audubon the sewing bird continued its increase until late in the nineteenth century. It was then that the enemy, which was to eventually cause the sewing bird's extinction in terms of use, made a timid appearance. To quote from the Britannica: "Oscillation in the abundance of birds in connection with food supply and number of enemies are of much interest." With the little sewing bird, food supply was no problem. As for the enemy, it was first but an idea in the mind of English inventor, Charles Weisenthal. Improvements on Mr. Weisenthal's idea continued from 1755 until 1832, when Walter Hunt of New York constructed a machine featuring an eyepointed needle and a double thread or lock-stitch. Unaware of Hunt's invention, Elias Howe of Spencer, Mass., patented his lock-stitch sewing machine in 1856. Public apathy protected the sewing bird from "number of enemies" for awhile. Then super-salesman Isaac Singer began a campaign to popularize the sewing machine—and the little sewing bird was doomed.

As frequently happens, the victor cares little for the fate of the vanquished. A letter from the Singer Company, dated August 21, 1973, states: "We regret that we can offer you no historical information on sewing birds, hemming birds, or sewing clamps. Singer did sell a device from about 1930 to 1950 that functioned in the same way as these more decorative accessories. It was called a material gripper and it served as an extra hand


Metal "Cherub" Clamp
(London Museum Collection)
wings or rear foot pressed down lift front foot which serves as top half of fabric clamp.
spring
small screw → holds top and bottom of base together - base opens to store pins
Handle
Wendy Wright Dirkson

Sketched at the London Museum, this baroque "Cherub" clamp combines both ornate design and practicality. A gentle downward pressure on either the wings or left foot lifts the right foot which then descends to secure the cloth. A small screw holds the top and bottom of the base together which opens to reveal pin storage. Dated between 1820–40.

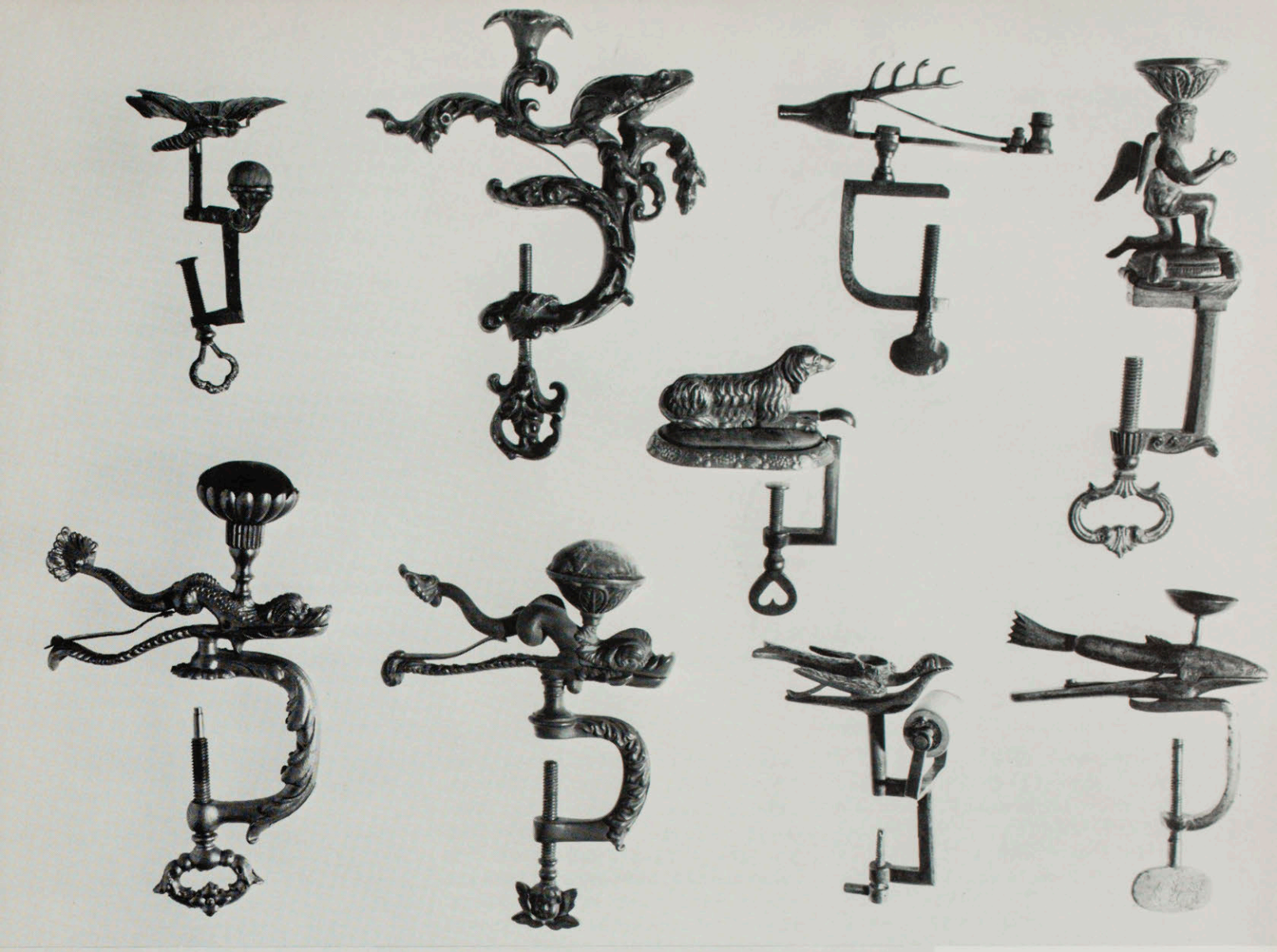
Drawing by Wendy Wright Dirkson

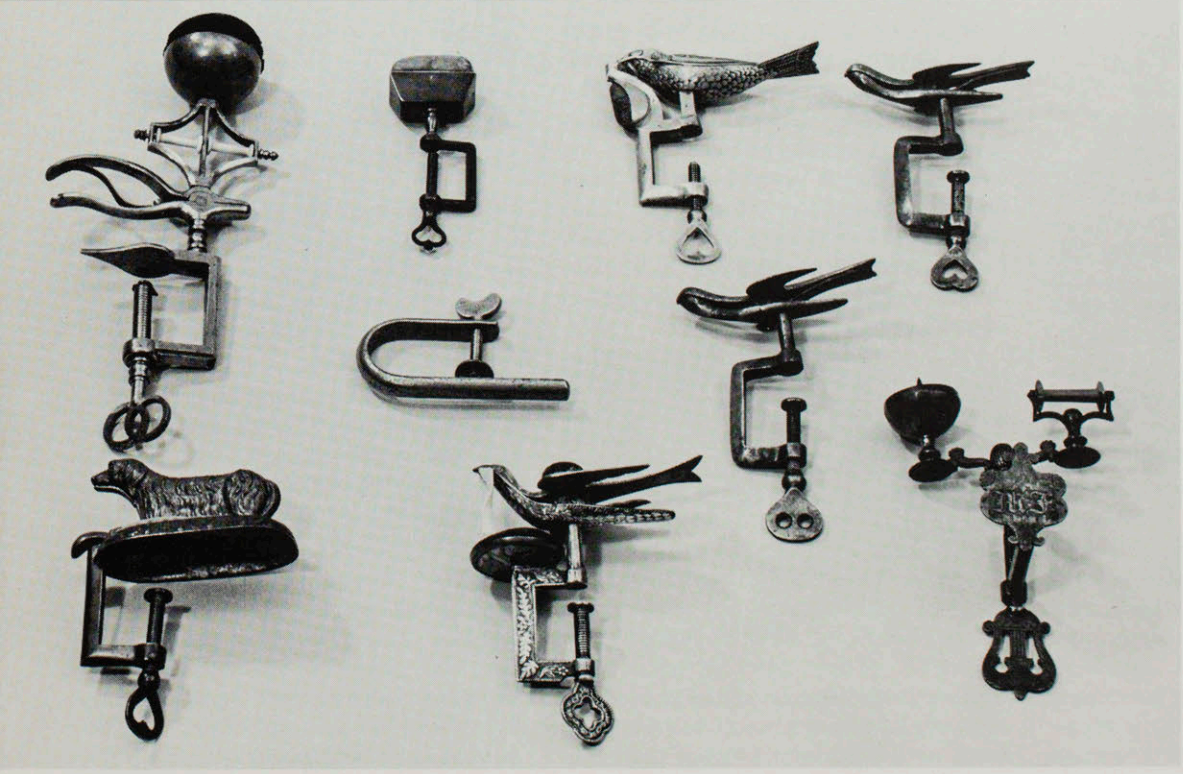
A sewing bird at work. The beak clamped firmly to hold heavy cloth items being hemmed by the homemaker.

A wooden clamp from Adobe de Palomares in Pomona. As is customary with many clamps, this is topped with a pincushion. The fabric is a plaid, the ribbon grosgrain.

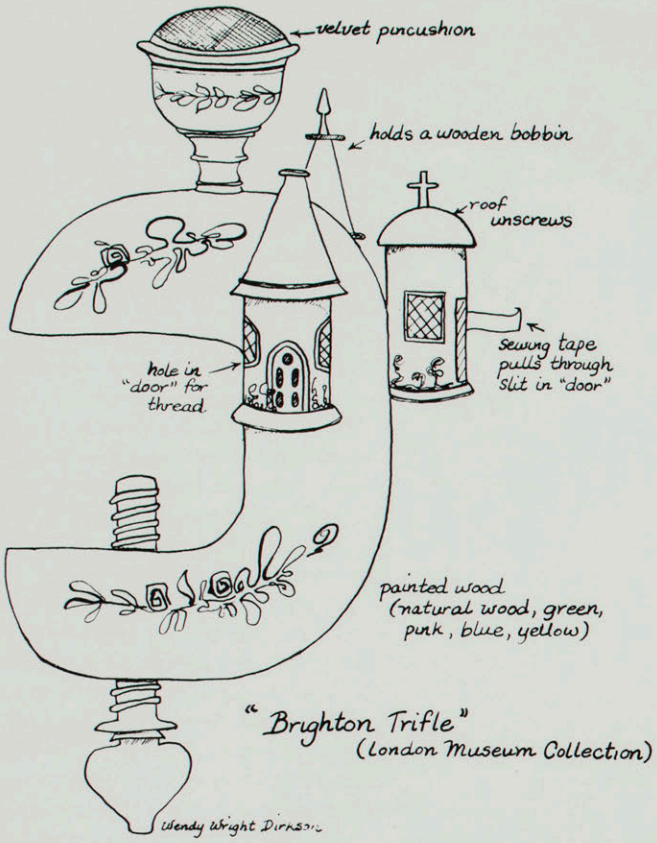
This clamp of honey-colored hardwood carries a none-too subtle yet charming reminder to the recipient.

Photographs by Gretchen Sibley





The exquisite modeling of sewing birds understandably enchanted women doomed to spend weary hours over hand-stitching duties.


velvet pincushion
holds a wooden bobbin
roof unscrews
sewing tape pulls through slit in "door"
hole in "door" for thread
painted wood (natural wood, green, pink, blue, yellow)
"Brighton Trifle" (London Museum Collection)
Wendy Wright Dirkson

The extravagance of Brighton Pavilion undoubtedly inspired this incredible clamp. Aptly named "The Brighton Trifle" it is of wood with decorations painted in green, pink, blue and yellow. A pincushion crowns this clamp confection while three turrets provide storage for a sewing tape, a wooden bobbin and thread. The London Museum lists this as a "Lady's Companion" possibly from the nineteenth century.

(Drawing by Wendy Wright Dirkson)

in holding fabric for hand-stitching."

While progress swept callously ahead, one member of the scientific community paid remarkable tribute to the little sewing bird. Botanist Manton Copeland from Bowdoin College, Maine, classified sewing birds into orders, families, genera, species and varieties. His extraordinary contribution is recorded in *Old-Time New England,* The Bulletin of the Society for the Preservation of New England Antiquities, April, 1950. A listing of the orders alone will give the reader an introduction to this painstaking work:

Types of Five Orders of Sewing Birds

I. Bill Grasper
(Bird grasps cloth *in* bill. It opens bill)

II. Sub-Bill Grasper
(Bird grasps cloth beneath bill. It does not open bill)

III. Body Graspers
(Bird grasps cloth beneath body)

IV. Pin Birds
(Bird holds cloth by pin on back. Small. Fastens to dress)

V. Superior Birds
(Cloth not held by bird, only by clamp)

One can but pity the loneliness of a botanist engaged in such a task, and shudder at the probable disdain of his peers.

Today the sewing bird has become a coveted collector's item. These once-useful little sewing comforts are even being copied and sold as authentic antiques. A letter from Mr. H.C. Dedrick, antique dealer of Cleveland, Ohio, warns: "Ohio is flooded with these. They are light weight and are tin-like. The crooked dealer artificially ages them and covers the cushions with old fabrics. Most of the new cushions are covered with coral corduroy."

According to Mr. Dedrick and dealer Mary Feverstein of Stonecrop Farm, Maine, both of whom have handled the authentic sewing birds, current prices go up rapidly and vary in most states for verified birds. A spread-winged brass bird with patent date on the wings (1853) sells for $45 to $50; a brass bird with two cushions (undated) $27 to $32.50; while a pewter full-bodied bird (wings not spread) brings $75 to $100.

Many of us may mourn the passing of the sewing bird and sigh over the romantic picture it evokes of colorful days gone by. But heed the words of an earlier housewife, worn with seemingly endless tasks, including the never-ending sewing and hemming:

"Don't mourn for me now, don't mourn for me never,
I'm goin' to do nothin' forever and ever."

Even the proud ownership of a sewing bird could scarcely keep the heart of such a woman from beating high had she read the following prophecy in Scientific American, July 17, 1952:

"While we look at the progress created by sewing machines, we expect them to create a social revolution . . . Ladies will have more time to devote to ornamental work . . . and families in which there are a number of children, which requires a continual stitching and making and mending from morning till night, will yet be blessed by the improved sewing machine."

Released from the harsh burdens of survival duties, so much a part of times past, proud owners, collectors, and admirers now have the leisure and perspective to appreciate and enjoy The Little Bird That Was.

Elizabeth Wright displays the wit and style that made her a famous comedy writer. A contributor to many magazines, she appears a second time in TERRA, on whose staff she also serves.

High Rise in the Ant World

by Roy R. Snelling

As the old saw has it, there's nothing new under the sun. And there is little invented by man that nature hasn't already tried. So it is with high rise apartments. The ants have already done it, with some interesting twists which, in the world of man, are still found only in science fiction.

Writers of science fiction often envision a future time in which man has developed his apartment dwelling to a monstrous degree, with huge monolithic complexes which are wholly self-contained, autonomous units. Sometimes, these "megapartments" are inimicably inclined toward one another.

But the ants have already done it. Many times. While in Mexico during July 1973, I had opportunities to investigate this phenomenon at first hand, in the states of Vera Cruz and Oaxaca. Here were found ants belonging to the genus *Azteca.* This genus was originally named almost a hundred years ago for the Aztec Indians of Mexico. The evident reasoning was that since the Indians were reputed to have been fierce warriors, it was appropriate to name these fiercely aggressive ants for them.

The ants are certainly aggressive. One barely touches the plant in which they live and the little warriors swarm forth. They do not have stings, nor are they very large. What they lack in stature and armament is compensated for by numbers and ferocity. Very nearly the whole population will turn out to swarm over the enemy, crawling into eyes, ears, nose, and mouth and running all over the body. The nip inflicted by one ant is barely noticeable, but when hundreds are at it, the effect is disconcerting. One of the species found in Vera Cruz was much inclined to drop, as a gentle rain, from the leaves above. The wise require little more to demonstrate the prudence of a strategic advance to the rear. I have discovered, too, that there is a noticeable tendency for the air to turn blue in the vicinity of such encounters.

Azteca ants are high rise apartment dwellers, living within natural cavities of various woody plants. They are true phytophilous ("plant loving") ants, nesting only in or on living plants, never in soil. Those which I studied in Mexico were associated with trees of the genus *Cecropia,* belonging to the family Moraceae. These trees are usually small to medium-sized, with smooth, pale bark and with large, long-petioled leaves arranged candelabra-like at the crown (fig. 1). The trunk is divided into sections, like a bamboo; it is hollow and thin septa separate the sections (fig. 3). The ants live inside the trunk, their "apartments" ready-made; all they have to do is cut a hole through the septa in order to move one "apartment" to another.

During the summer rainy season, new *Cecropia* trees begin to grow; at the same time, the *Azteca* colonies send forth winged females and males, which mate in the air. After mating, the males die, but the females seek out the new Cecropias, those which are about three feet high. Each internode of the plant possesses a single leaf, and the wall above this point of attachment has a shallow groove with a small pit (fig. 4). At this point, the trunk wall is thin and lacks the hard fibrovascular bundles found elsewhere. Here, the newly mated *Azteca* female gnaws a hole to gain entry into the hollow interior of the plant.

I've looked at a number of these new plants and found one female in each section. After these gain entrance to their "apartments," they remain there and after a few days begin to lay eggs. In the meantime, the growing plant has closed the "door" and the queens are safe from invasion. Apparently, once the "door" has been opened and then closed, no other *Azteca* female will attempt to reopen the entrance.

The eggs laid hatch into tiny larvae which are fed by the queen for about two weeks. The larvae then pupate and after another couple of weeks mature as small workers. These set about opening the closed "door" once more. The first workers to mature and gain access to the outside of the plant also pierce the septa dividing the various apartments, each with its own queen and developing brood. The queens are destroyed, for only one colony is allowed to exist on each plant, but the brood may be appropriated and reared as their own.

Food for the ants is provided by the plant itself. The inner walls of the growing sections are covered with a dense mat of soft tissue which the ants scrape off and consume (fig. 3). Also, at the base of each leaf stalk, there is a triangular, hairy patch (the *trichilium),* on which can be seen tiny white objects which look like insect eggs (fig. 5). These are actually of plant origin and are called "Müllerian bodies" and consist of highly nutritious protein substances. The ants also gather these as food. Finally, like so many ants, these have their "cows" in the form of mealy-bugs which feed on the plant tissues from within the sections and provide the ants with honey-dew, simple plant sugars. Insects which may alight on the *Cecropia* are also killed and consumed to supplement the diet.

As the tree grows, the walls of the lower trunk become thicker, reducing the diameter of the inner chambers (fig. 6); at the same time, the pulpy lining dries and is no longer edible. The ants, then, are forced to utilize the upper, or crown, portion of the tree, for here is where the food is. As the crown continues to grow upward, new septa are pierced and the "apartments" utilized

and the colony rises progressively higher. This process has obvious advantages to the tree, for it keeps the ants in the growing portions of the tree. Here, the presence of the ants serves to discourage insects and other animals which might otherwise feed on the tree.

An especially vigorous colony may gain access to nearby *Cecropia* trees by means of bridging vines. If these trees harbor ants, it follows that a battle will occur and continue until one or the other colony is destroyed. The victors then occupy and colonize the new tree, and the colony continues to grow.

Many species of *Cecropia* have been described with species ranging from Mexico to Argentina. Not all harbor ants and those which do not lack the *trichilia* at the bases of the leaf stalks. Presumably they also lack the pulpy inner lining of the internode walls. They are, therefore, not suitable to the ants.

Some species of *Azteca* construct intricate carton nests within the hollow internodes. The material for these carton nests consists of woody tissues scraped from the interior walls. Occasionally, this scraping so weakens the trunk that the weight of the tree above it may cause it to bulge perceptibly at that point. Other species, such as one of the Mexican species studied, make small carton nests and cause no deformation of the trunk (fig. 7,8). Still others make carton nests which are placed externally on a limb. Not all species of *Azteca* nest in *Cecropia,* but all are associated with trees. And, while *Azteca* are the ants most commonly found in *Cecropia,* other ants occasionally may utilize these trees.

There are many ant-plant relationships of this type in tropical areas of both the Old and New World. Such associations are less common in temperate zones, but they do exist. But *Azteca* are certainly *the* "high rise apartment" dwellers of the ant world.

Roy Snelling is no stranger to TERRA; his research on ants has brought him considerable distinction in the field of Entomology. His wife Ruth has provided beautiful illustrations to accompany much of his work.

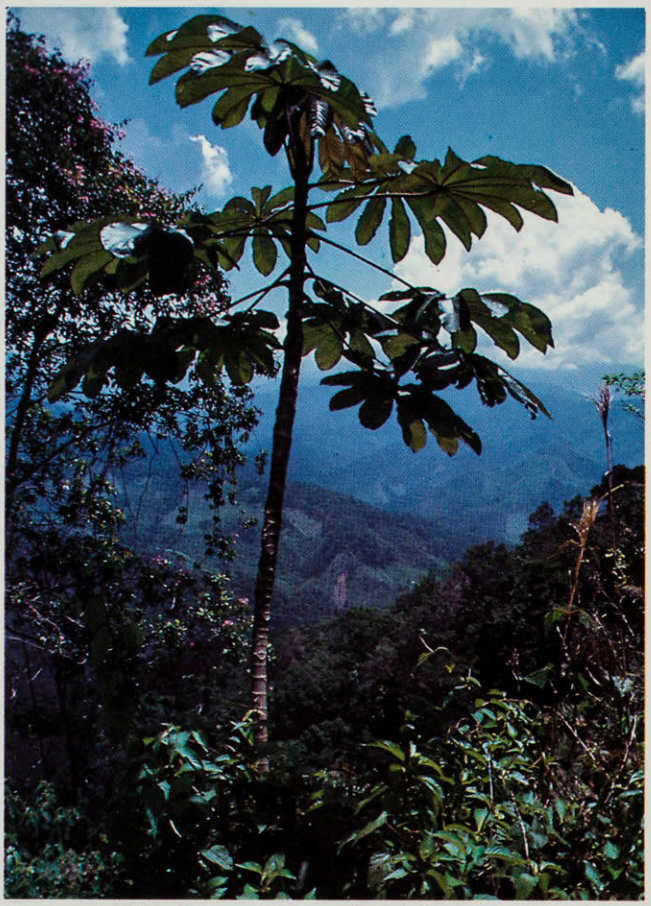


Fig. 1 *Cecropia* tree. Mountains near San Mateo Yetla, Oaxaca.

Fig. 5 Underside of leaf stalk base, showing hairy *trichilium* and white *Müllerian bodies* on which the ants feed.

Fig. 2 The same tree as in Fig. 1, cut into lengths and carried back to Fortin. The paper caps prevented escape of some of the ants into the truck.

Fig. 3 Section of lower trunk. Note thickness of the walls and the pierced septa.

Fig. 4 Outside of trunk, showing groove and pit by which ants enter the trunk.

Fig. 6 Section of split trunk, showing septa dividing it into "apartments." Note, too, that the lining is partly scraped away by the ants.

Fig. 7 Carton nest, *in situ*.

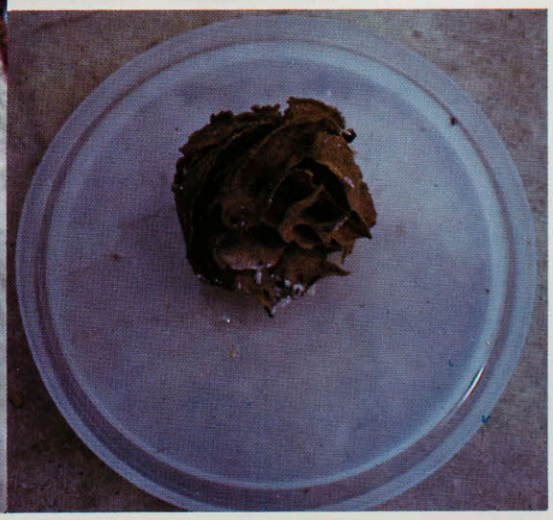


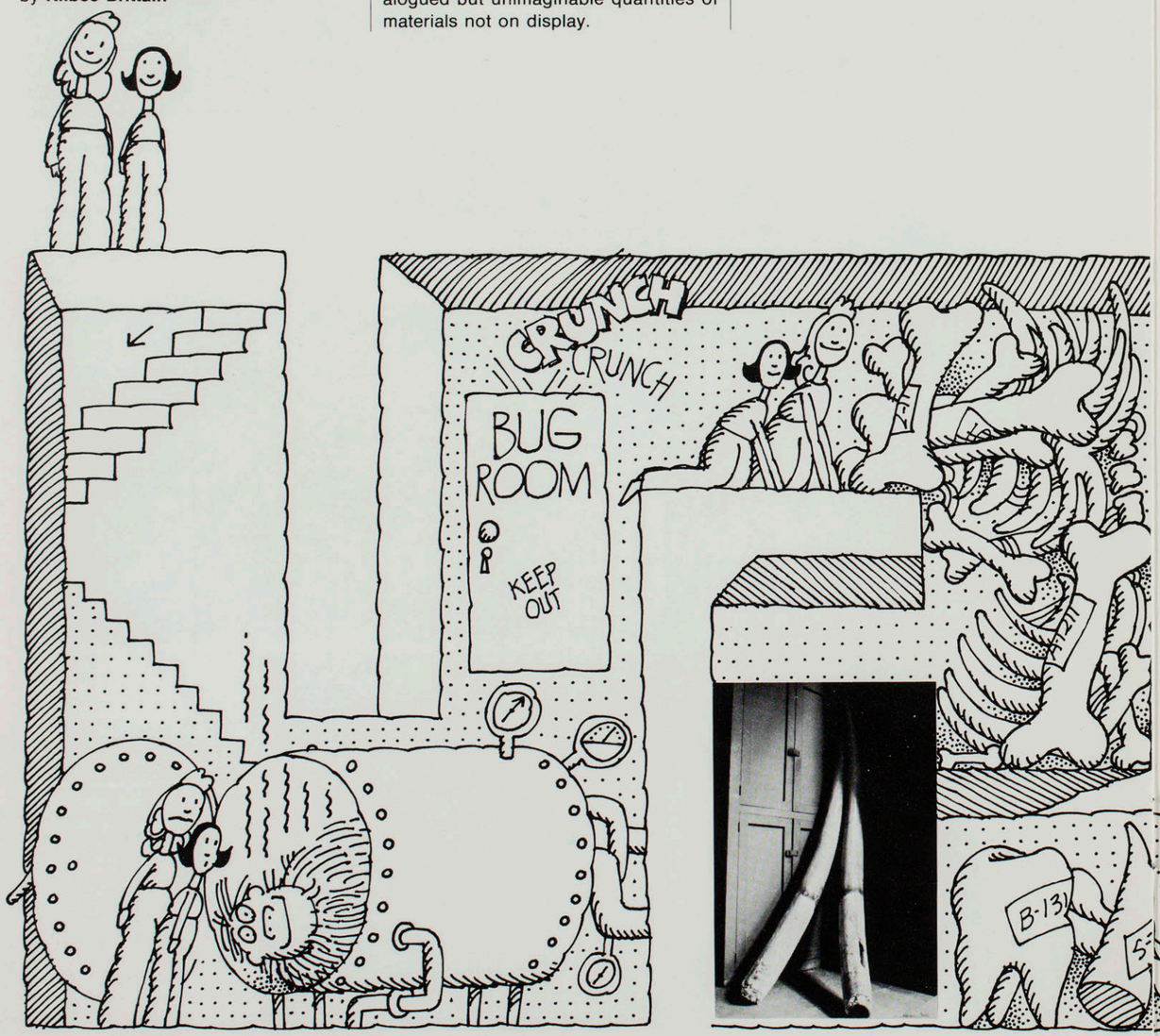
Fig. 8 Carton nest, removed.

Museum Storage Treasures in Tunnels

by **Kilbee Brittain**

In the cool darkness, huge curved tusks loom; massive shapes suggest mysteries of our lost past. The elephants' graveyard, freshly discovered by Tarzan? The Cave of the Mammoths explored by King Babar? In a dim shaft of light, a jackrabbit lies with a "D.O.R. Pinto Basin" tag tied to one foot. A coyote tagged "Tuolomne, August 1950," two elephant feet, plaster casts of all kinds of hooves and paws, a huge bison skull are suddenly illuminated in an electric blaze. This is one of the tunnels under the Natural History Museum of Los Angeles County, stretching for no one knows how many miles and holding catalogued but unimaginable quantities of materials not on display.

Aside from their indispensable function as cool storage areas, the tunnels are part of the Museum's fresh-air system. Fans which push old air out had been turned off earlier on the dark, rainy day when TERRA's editor and I toured the tunnels with the Director of Maintenance, so that we would not be frozen while exploring. For almost four hours we walked, crawled, crouched, climbed and hopped through miles of territory beyond most speleogists' dreams.

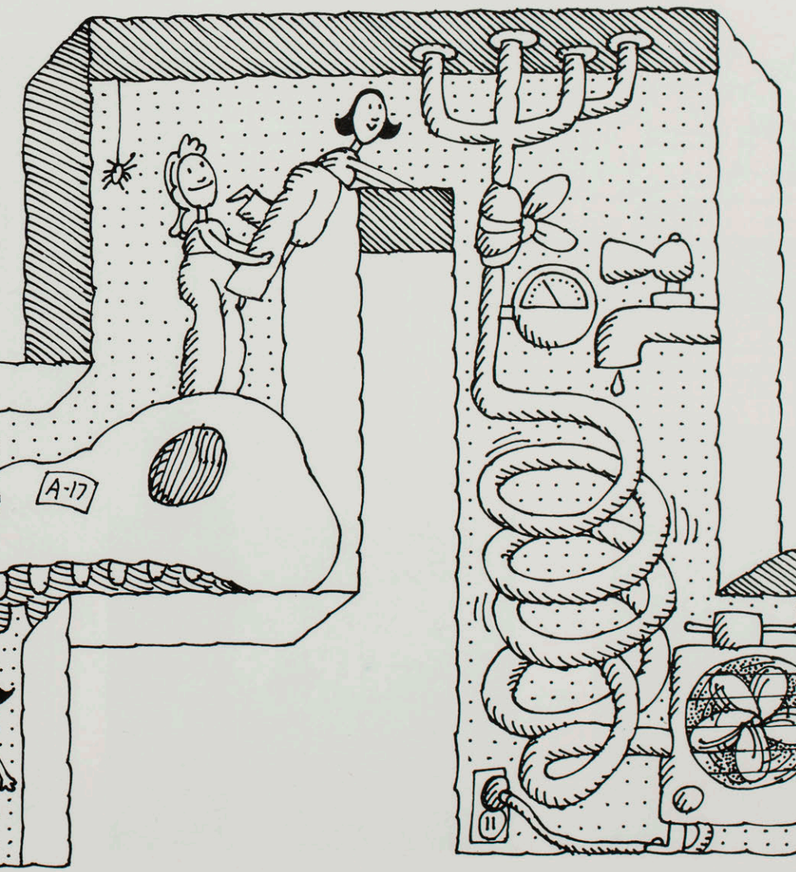


The tour began above the tunnels, out of the Westward Movement Hall, through a heavy door into the fumigating room. All skins, furs, and papers that come to the Museum, and from time to time all such objects on display, must be fumigated. The fumigator is a large cylinder operating on a vacuum fumigating system. "We insert a one pound can of liquid methyl bromide, pull the valve, and the vacuum draws it into the cylinder," our guide explained. "We leave the door closed for 24 hours, but I can open it for you now." We looked in and confronted a reclining ape man whose beautiful brown eyes stared unblinkingly at us. Turning hastily away, we saw an Andean condor, stacks of papers, and a "bull-boat," leather outside and fur inside, waiting their turns. For on-the-spot fumigating, a small moth flakes cylinder of refined naphthalene is put into the actual display cases.

The Master Mechanic took us from the fumigating room toward the tunnels, pointing to a door on the way. "That's the bug room. I can't take you in there; it's filled with dermestid beetles that clean fresh bones for us. You see, taxidermists must remove all flesh from bones. They use a brain spoon like a dental pick to clean out skulls. But the brain cavities of smaller mammals can't be reached by the spoon, so the beetles do the job. It's a perfect balance of nature: when there are lots of bones to clean, the beetles flourish and multiply; where there's a shortage, they decrease."

Through a small door we crawled into the tunnel system, past one of the exhaust stacks reaching the whole height of the Museum, through the paleontology storage tunnel filled with rib cages, teeth, horns, bones still encased in plaster straight from a dig, a Tyrannosaurus skull, a cast of a plesiosaur from Beaumont. Every specimen is carefully catalogued with precise little letters and figures. The Master Mechanic switched lights on as we entered each new tunnel area, plunging the tunnel we had just left into darkness again. "Watch your step," he said as we picked our way through a pile of "fresh bones" waiting for the bug room. "I'm glad for you that it's a cool day," he added.

We worked our way along tunnels covered with sawdust to absorb dust, to the intake fan room, where air dampened by a spray is warmed by a room of con-



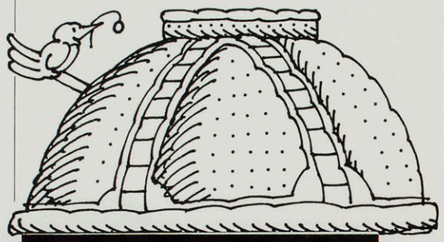
vector coils and pushed into the air vents of the Museum. Workmen periodically polish and burnish the spray nozzles so they do not rust. The galleries above must be kept moist enough, not only for visitors' comfort, but also for the preservation of the displays. "This system was built into the Museum in 1924," the Mechanic said, "and has worked without problems ever since."

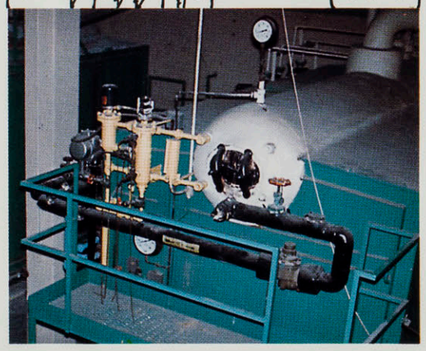
The guide walked past a fine old clock, once in the Los Angeles City Hall, toward the tunnels controlling the air ducts up into the Museum. "Notice," he said, "we don't use these particular tunnels for storage. We have to have so much air per cubic foot, so we need the empty space. These big doors are fire doors, double doors with weights to close them on either side. They would prevent fire from spreading from these mechanical areas of the tunnels up into the Museum." He put his ear to one of the air ducts and smiled. "Sometimes you can hear the people talking on the floor above."

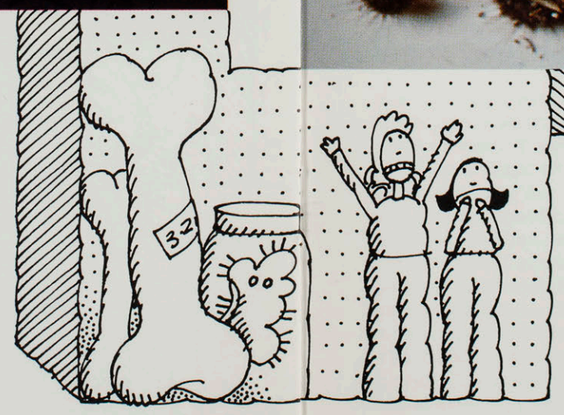
Through a cross service tunnel housing the grease trap funnel from the cafeteria, we crawled under some pipes and upstairs into the boiler room, bright with freshly-painted green and red pipes. Only one of the two boilers is used most of the time. These low pressure boilers do not need constant supervision; when pressure drops to four pounds, the boiler turns automatically on up to ten pounds, and then cuts off.

Past the manhole up into the maintenance shop, past a sign reading "This area contains flammable fluid," we suddenly and briefly emerged into the Indian galleries. The Master Mechanic unlocked a door from the Plains Indians gallery into more storage areas crammed with fish specimens and with generators and high voltage vault. Down some stairs and into a corridor we came upon the University of Southern California seismograph, lodged in the tiny corner where the older and newer wings come together—the area of most stability in the building and indeed in this part of the city. "The 1970 earthquake shook off a little plaster," our guide said, "but couldn't damage this strong old structure."

"We'll go up to the dome now." Up we climbed into the La Brea Hall under the dome newly-painted with gold leaf. Up more stairs out on the rain-splotched rim of the dome, we saw a screened section filled with very "new" bones. "We count on insects to clean these for us," the Mechanic explained. The back side of the dome is storage for life sciences and more paleontology and La Brea materials from the earliest excavations. The circular corridor is filled with boxes marked Smilodon californiens, Elephant miscellaneous, Canis dirus, Vertebrae of camelops, Young lion broken humerus. Box upon box, bone upon bone, thousands and thousands of ancient Angelenos.







In the odd half-light of the dome shell, it is hard to distinguish bare bones hanging from the ceiling from those suspended objects wrappered like mummies for their preservation. What strange company, all lying together invisible above the gold leaf as once they were invisible under tar or earth, still waiting for their due attention.

Out of the dome top, we climbed through a narrow tunnel into an area above the Sesnon Hall which used to be the ceiling of the building many years ago. The area below was the original art gallery of the combined old Museum. Nearby are the guards' room, botany office, ichthyological library, and more storage—cupboards of carnivora, a cranium of a wild pig from Peru, a mold of a Tyrannosaurus skull—all available space used to the utmost.

The journey continued into the backs of Hall of Evolving Life displays, past the Museum's "earliest exhibit of air conditioning," the kangaroo rat burrow, down farther through the Education Wing's lending service into rooms of more recent La Brea materials, lined with drawers labelled, "sixth lumbar," "seventh lumbar," "smilodon femora used in dating Carbon 14."

Past the ichthyological storeroom, carpenter shop, mechanical offices, cafeteria, we walked to the technology storage, a huge room crammed with movie equipment, phonographs, cash registers, a child's sled, a telephone mill made into a coffee grinder, toy trains, Metro Goldwyn Mayer lighting equipment—"perfect for a giant swap meet," our guide remarked.

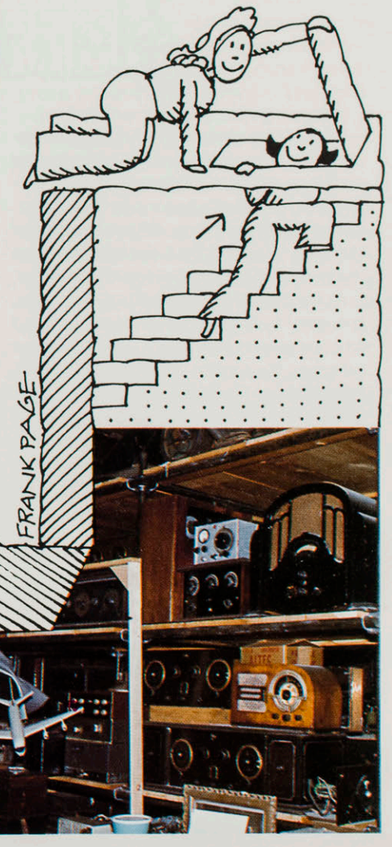
By the old cars a panel opened into a hall with shelves lined with great old boxes labelled "Ptolemaic mummy," "Imperial Prunes," "Motor parts," "Old bikes." Beyond this hall is costume storage, including old saddles, a model of a hand peeping out from a print of Santa Luisa, irons, pots, a boot jack, a German doll house kitchen, boxes of antique plates.

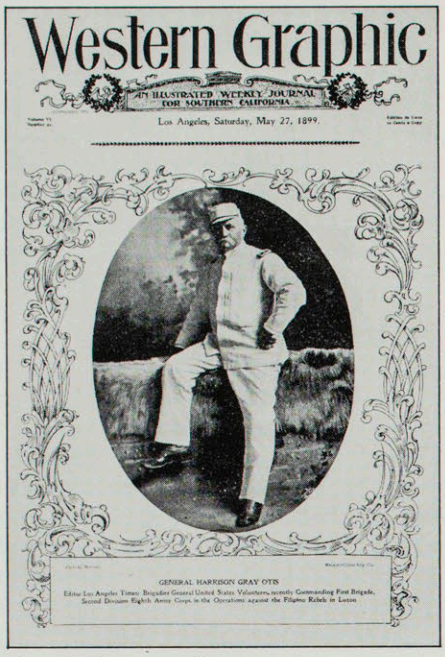
On our way back up to the roof for a final view, we staggered through a hall filled with skins from a recent African expedition, ready to go to the tanner. One seemed to have a pig's head and cat's feet, but at that point nothing much could have surprised us.

The adjoining roof porch held rows of fish in bottles; the Beaumont dinosaur tail being assembled, cases showing stages in the process of taxidermy. The machine for making plastic water for the bison display in the North American mammals hall was standing next to some boxes of plastic leaves, a kayak, and a fourteenth-century Venetian statue of St. George.

On the roof itself, where the roof garden will be after the new wing is constructed, we looked at the copper roofing glistening green in the drizzle, and thought of the marvellous miles lying beneath it. From tunnels to top, a building filled with treasures past and present. An old building with a great future.

Kilbee Brittain loves Museums and Zoos among other things. Her Ph.D. in English Literature is the bonus that accounts for the clarity of her prose. An African Safari with husband and three of four children will produce still another article for Terra, *of which she is an Associate Editor.*




Western Graphic

AN ILLUSTRATED WEEKLY JOURNAL FOR SOUTHERN CALIFORNIA

Los Angeles, Saturday, May 27, 1899.

GENERAL HARRISON GRAY OTIS

Editor Los Angeles Times; Brigadier General United States Volunteers, recently Commanding First Brigade, Second Division Eighth Army Corps, in the Operations against the Filipino Rebels in Luzon.

From Publisher to General Harrison Gray Otis

by **Donald Chaput**

One of the military innovations attributed to Napoleon was his ability to convince average soldiers that they carried field marshal's batons in their knapsacks. Harrison Gray Otis, a native of Marietta, Washington County, Ohio, was the type of soldier Napoleon had in mind.

At the beginning of the Civil War, Otis, a twenty-four-year-old printer, enlisted as a private in the 12th Ohio Volunteer Infantry Regiment in June of 1861. Within days he was promoted to sergeant, and his courage and aggressive leadership soon resulted in further promotions. In mid-1864 he was promoted to captain and transferred to the 23rd Ohio Infantry.

The Otis war record included fifteen battles and skirmishes. He was first wounded in the battle of Antietam in 1862, and then, more severely, at Winchester, Virginia, in 1864. After he recovered, he served as provost marshal at Harrisonburg, Virginia, taking paroles from Confederate soldiers and preserving order in the district.

The 23rd Ohio compiled a solid record in the conflict, and Otis was outstanding. The regiment included commanding officer Colonel Rutherford B. Hayes, soon to be President of the United States, and Captain William McKinley, another future President. Such friendships could prove valuable to anyone, but Otis' heroism was remembered by these men in later years.

Otis was discharged as a captain in August of 1865 after serving forty-nine difficult months, mostly in Pennsylvania and Virginia. Colonel Hayes used his influence to have Otis awarded the brevet rank of lieutenant colonel "for gallant and meritorious services."

After the war Otis returned to the newspaper business in Marietta, later served as a printing foreman in the Government Printing Office in Washington. He moved to California in 1876 and published the *Santa Barbara Press.* In 1879–81 he was appointed a government agent in Alaska by President Hayes. Otis moved to Los Angeles in 1882, buying one-third interest in the Los Angeles *Times* and acquiring control of the paper the following year.

Until his death in 1917, Otis ran the *Times*—many say Los Angeles. In his long, colorful career Otis was often in the middle of controversy. In municipal and state elections, in flamboyant real estate promotions, in streetcar, railway, and highway schemes, Otis and the *Times* were heard. Accusations of corruption, by and against him, were common. He was praised by many as a public spirited leader, condemned by others as a corrupt, power-mad capitalist.

When the Spanish-American War erupted in April of 1898, Otis volunteered his services to his old comrade-in-arms, President McKinley. Otis was appointed a brigadier general of volunteers on May 27, and on June 12 he was selected to command the 4th Brigade of the Philippine Islands Expeditionary Force.

In choosing Otis for this key combat post McKinley acted from a variety of perspectives. He and Otis were old Ohio wartime buddies who had seen much combat together. He had also witnessed Otis' rise in military rank from private through captain. The promotions had been earned both in battle and in the drudgery of end-of-war administration.

Following the Civil War, McKinley had seen Otis become probably the best known publisher west of the Mississippi. Naturally, Otis and the *Times* backed McKinley in the election of 1896. So Otis the buddy, the soldier, the powerful publisher, was tapped for a general's star.

Surprise and outrage over the ap-

pointment came a few days later, especially in northern California. The California National Guard held nothing back in condemning the appointment:

> Of all the men mentioned for the place, Otis is the most unpopular, and many believe the one least entitled to recognition. . . . In no sense of the word is he an organizer. His chief function is to disorganize and demoralize.

What rankled the Guard was a statement by Otis in the *Times* which suggested that the government would be better off calling for volunteers, rather than calling up the National Guard. Otis said that the Guard "serve their purpose with fidelity in peace," but in time of crisis the country should not ignore her "war-tried" men. The best men to choose, said Otis, were the men who led companies and regiments in the old army, meaning, of course, men like Otis.

The Otis statement disparaging "the young men of California who propose to go to the front" caused the Guard to howl. Otis, according to the Guard, would "make trouble among our soldiers in the field and at the front would probably want to run things to suit himself, regardless of his superiors." The Guard did not belittle Otis' Civil War record, but they claimed that "a thousand veterans" of the war were just as qualified as Otis.

Otis held several different unit commands on the way to the Philippines and after his arrival in Manila on August 1, 1898. In October he was appointed head of the 1st Brigade of the 2nd Division, which was led by General Arthur MacArthur. For a few months there was little military activity, as American troops assisted the Filipino army in disarming the Spanish soldiers. The Spanish-American War was over, but peace in the Philippines was years away.

Filipino disgust with continued American presence resulted in war between the U.S. forces and the Philippine Republic in early February of 1899. The Otis-led 1st Brigade participated in most major actions of the "regulation" war for the next two months. Otis led the principal force in the assault and victory at Caloocan on February 8–10. The Los Angeles *Evening Express,* a rival paper, referred to the event as "an admirably conceived plan of battle" and claimed that "Otis' brigade covered itself with glory." The Brigade at this time consisted of volunteer infantry regiments from Montana, Pennsylvania, and Kansas, and the 3rd U.S. Artillery of the regular army.

The major campaign of the war was the assault on Malolos, which was the temporary capital of the Philippine Republic. Major battles began on March 25, with Otis ordered to "pierce the enemy's center," which he did that day. The tough advance continued until March 31, when the Otis Brigade and other units entered Malolos, which had been burned by the Filipino army.

With the fall of the capital, Otis felt the war was over, and he asked to be relieved of command. The Filipino regulars had been decisively beaten, and Otis had been further honored on March 25 by being breveted a major general of volunteers for his work at Caloocan. Otis and most of his brigade left the Philippines in mid-April and arrived in San Francisco on April 29.

After the fall of Malolos, the Filipino army did not collapse but, instead, disbanded and for three years carried on widespread, effective guerrilla actions against tens of thousands of American troops. Yet, when General Otis landed at San Francisco, the American people felt the war was over and welcomed the returning conquerors.

California newspapers, regardless of political preferences, lauded Otis. The *San Francisco Chronicle* cornered Otis the day he landed and interviewed him at length on the situation in the Philippines. On May 3, Otis arrived in Los Angeles at the Arcade Depot, where he was met by his family, the *Times* staff, the Chamber of Commerce, the local War Board, and other well-wishers. The city further welcomed him that night as about 4,000 people gathered at the Chamber of Commerce Hall to hear speeches of praise and patriotism. In a brief speech Otis thanked those present and expressed surprise at the elaborate welcome-home ceremonies.

The *Western Graphic,* a Los Angeles weekly, summed up what most Californians were saying:

> General Otis has had a number of hot chances to show the good stuff he is made of and no one will say that he has not fully come up to all expectations.

The California National Guard was silent. All the severe criticisms of Otis as leader and administrator were proven groundless. The hero of Caloocan and Malolos had repeated his Civil War record, this time at a higher level to a wider audience. Otis was not a mere general who stood out because he was alone. In the 1899 battles, Generals MacArthur, Wheaton, King, and Lawton had led divisions or brigades; Lawton fell in battle, as did Wheaton the following year. Yet, amidst these regular army generals, Otis the general of volunteers had performed admirably. This is remarkable when we recall that Otis' last service had been as a regimental captain in 1865.

President McKinley made a widely publicized tour to the west coast in the spring of 1901 and reached Los Angeles in early May. He made several public appearances and speeches, and the people were flattered by this attention. No doubt McKinley enjoyed the discussions of the merits of the Otis appointment. He was with General Otis several times during the tour, and the President was given a small reception at the Bivouac, the Otis home on Wilshire Boulevard. The President stayed overnight at the Bivouac, and Otis converted the den and arms room into a presidential office.

When Otis returned to civilian life he again was embroiled in a series of disputes with almost every other power group in Southern California. The dynamiting of the *Times* building in 1910 is an example of the intense feelings some people had for Otis.

Yet, after the victories at Caloocan and Malolos, Otis' opponents no longer slashed at his soldierly pretentiousness and his lack of leadership. It was true that the President had promoted a long-admired friend, but the friend responded in a proper manner. Like Napoleon's foot-soldier who took his field marshal's baton from his knapsack, Private Otis had shown that he deserved to wear a general's star.

Donald Chaput, a senior curator in the History Division, is in charge of the military and political collections. He has written books and articles on mining, exploration, and the army in the West, and is currently working on a biography of General Harrison Gray Otis.

General Otis in the field, Philippines

"A Scene in Malolos, on Entrance of Americans. Chinese flags are everywhere, flying for the protection of lives and property of Chinese residents and merchants. These flags were always respected as covering neutrals and non-combatants." (original caption)

Sword from a captured Filipino officer, Province of Laguna. The sword is part of the extensive Otis Collection, given to the Museum by the family in 1924.

San Francisco Chronicle;
Otis returns from the Philippines

SAN FRANCISCO CHRONICLE--PAGES 23 TO 32.

TRANSPORTS GRANT AND SHERMAN FROM MANILA.

SOLDIER BOYS RETURN HERE.

DEMOCRATS NOT HAPPY.

SAN FRANCISCO WILL CELEBRATE DEWEY DAY IN THE SPIRIT OF PATRIOTISM.

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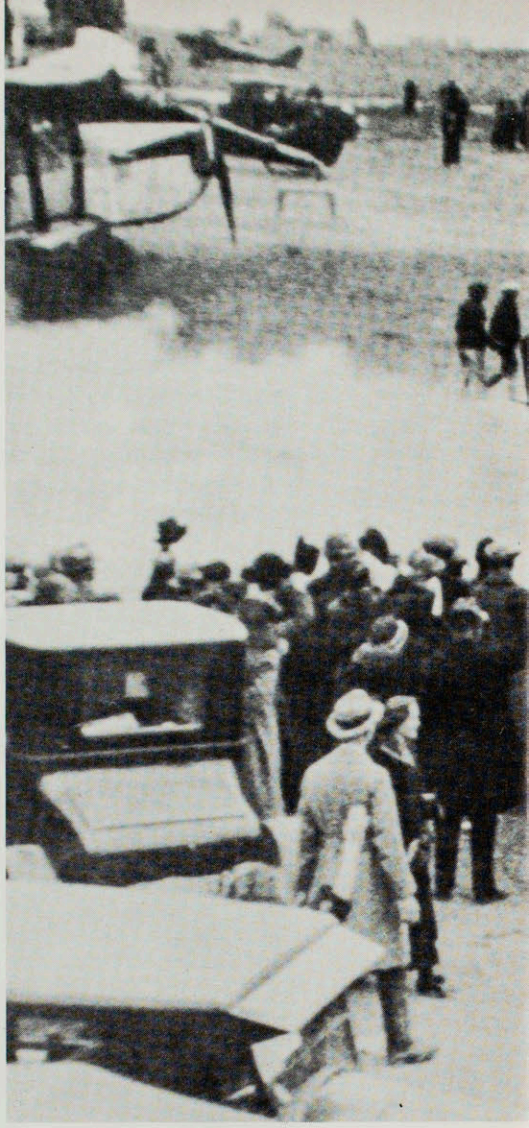
Photos by Armando Solis

"I cannot recommend it as a pleasure trip"

The First Round-the-World Flight has a Fiftieth Anniversary

by **Konrad F. Schreier, Jr.**



Southern California was alive with aviation activity in the 1920s because of its year-round good flying weather; little of it, however, was of the spectacular sort which garnishes the record books. The year 1924 changed all that, as fledgling Clover Field in Santa Monica launched the airplanes which made the first trip across the Pacific Ocean on their way to the first flight around the world. And the open-cockpit single-engine biplanes that did it were designed and built in Santa Monica by Donald Douglas.

The plan for this flight formed in the minds of a group of U.S. Army Air Service officers led by General Mason M. Patrick and General Billy Mitchell. Its purpose was to gather information which would lead toward making America a leader in long-range commercial flights, and to prove it was possible to fly around the world. The idea quickly captured enough support so money was allocated to finance it, and the search began for the planes, the pilots, and the bases required to complete it.

Since planes were a primary consideration, the Air Service turned to a Southern Californian. Donald W. Douglas was already famous for his successful long-range airplane designs. A 1915 graduate of Massachusetts Institute of Technology, Douglas had been chief engineer both for the Air Service and for pioneer aircraft builder Glen L. Martin. In 1917 Douglas had designed a twin engine biplane, the Martin Bomber, the auspicious prototype for the next ten years of American large-plane development. Douglas came to Southern California in 1920 and began his renowned company by building the Cloudster, the first flying machine to airlift a useful load exceeding its own weight. In 1921 he sold the U.S. Navy three DT-1 single-engine torpedo pontoon biplanes, the first successful design for this specific use. Based on his record, and despite the fact that he had built only four airplanes on his own, the Air Service selected Douglas as the man to create planes which could fly successfully around the world.

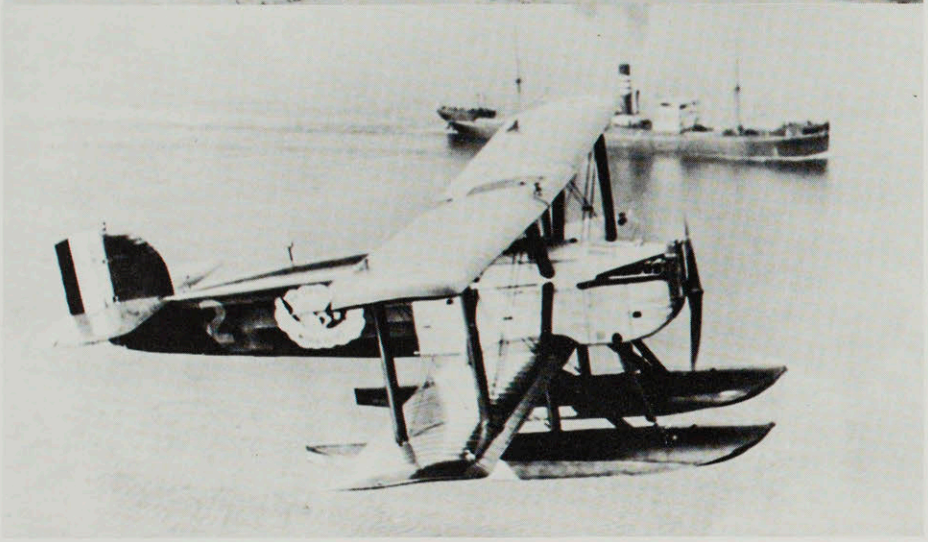
While work began in Douglas' plant, an ex-motion picture studio at Wilshire Boulevard and 26th Street in Santa Monica where Douglas Park is today, the Air Service combed its ranks for men who could make the flight. The carefully-chosen flyers began training at Langley Field, Virginia, in late 1923, using the first of the five Douglas World Cruiser airplanes.

The Douglas World Cruiser was a large, open-cockpit, single-engine biplane. Its design drew heavily on earlier Douglas airplanes; however it came equipped with two unique "convertible" landing gears, which allowed the interchangeable use of either wheels or pontoons. The plane had a top speed of about one hundred miles per hour, and cruised between seventy and eighty. Its maximum range was over a thousand miles, as dictated by the longest leg of the flight. The first World Cruiser used for training the flyers during the winter of 1923–1924 developed no serious bugs and was considered an excellent plane. While the training went on and the four remaining Douglas World Cruisers were being built in Santa Monica, the advance-base preparations for the flight were being carried out.

World Cruiser SEATTLE beginning her take-off run at Clover Field, Santa Monica on March 17, 1924. This was the actual start of the Round-the-World Flight. (Los Angeles County Museum of Natural History photo)

Preparing to tow a World Cruiser from the Douglas factory to Clover Field in Santa Monica. (Douglas Aircraft photo)

World Cruisers NEW ORLEANS, CHICAGO, and BOSTON II during their return flight across the United States. (U.S. Air Force photo)



World Cruiser CHICAGO in flight in her pontoon configuration. (Los Angeles County Museum of Natural History photo)

Negotiations with foreign governments were necessary to secure use of the more than seventy landing places required for the flight. Supplies of fuel and lubricants were arranged. Spare parts, including engines, wing panels, pontoons, and sundry other bits and pieces were shipped to strategic points where they might be needed. The U.S. Navy joined the project to provide logistic support, as well as search-and-rescue service for the over-water legs of the flight. The U.S. Bureau of Fisheries and several foreign governments also volunteered ships for this purpose. By the beginning of 1924 world-wide interest had developed. In February attention focused on Santa Monica when the flyers arrived there to complete preparations for the flight.

One by one, the four new World Cruiser planes were towed to Santa Monica's year-old Clover Field Airport, each moving on its own landing gear wheels with the wings folded back against its fuselage. The flyers began working with the planes while they were still in the Douglas plant, and they continued to tune, test, and tinker with them after they arrived at Clover Field. Excitement ran high in the days before the scheduled takeoff, the middle of March.

The ships were christened: No. 1, SEATTLE, Maj. Frederick L. Martin, pilot, Lt. Alva L. Harvey, mechanic; No. 2, CHICAGO, Lt. Lowell H. Smith, pilot, Lt. Leslie P. Arnold, mechanic; No. 3, BOSTON, Lt. Leigh Wade, pilot, Lt. Henry H. Ogden, mechanic; No. 4, NEW ORLEANS, Lt. Erik Nelson, pilot, Lt. John H. Harding, mechanic. These flyers were all experienced aviators, and proficient in the skills that flight would demand.

A large crowd gathered at Clover Field on the cold, misty morning of March 17, 1924, to witness the departure. Following takeoff of a gaggle of escort planes, the World Cruisers, one by one, roared into their historic flight. Many of the crowd felt their chances were about as good as Magellan's when he set out four centuries earlier to sail around the world for the first time, but all wished the flyers success.

A couple of hops got all four planes to Seattle, Washington, on March 20th. Seattle was the official starting point of the flight, since it was from there the planes left the United States mainland. At Seattle the planes converted from wheel to pontoon landing gear, and they were given one last careful check.

On April 6th the planes took off from Seattle on the First Division of the flight ending at Attu Island, Alaska. Although spring had been chosen to insure good weather, the year 1924 proved to be the worst spring in the recorded history of the North Pacific. Disaster struck when SEATTLE got lost and crashed into a mountain. But, amid tremendous drama, her crew rescued themselves and were little the worse for their harrowing experience. While SEATTLE'S crew returned home in abject disappointment, the other three planes completed the seven foul-weather hops to reach Attu on May 9th.

The Second Division, seven hops from

World Cruisers CHICAGO, NEW ORLEANS, and BOSTON II in flight over New York City after their return to the United States. (Douglas Aircraft photo)

Attu to Kagoshima, Japan, began that same day. Still on pontoons, the World Cruisers made the flight with little trouble despite continued bad weather. They made a fuel stop off Nikolski, Siberia, and were forced to refuel at sea because the Russians would not allow them into the harbor. The Imperial Japanese welcomed them with pomp and ceremony, and carefully photographed every detail of the planes, while forbidding the Americans to photograph anything in Japan which might be of possible military interest. The planes landed at Kagoshima on June 2nd, where they underwent a careful check and overhaul.

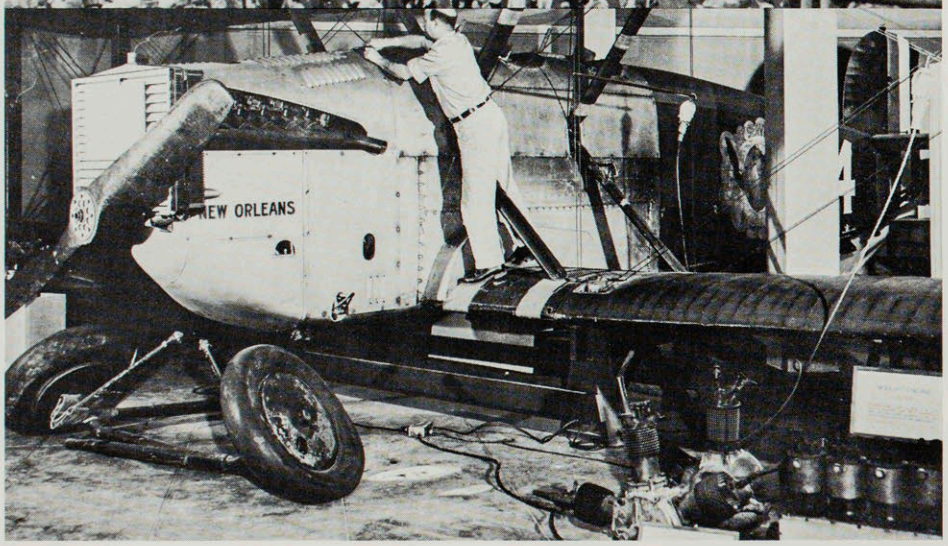
The Third Division was 14 hops from Japan to Calcutta, India, departing June 4th, and flying by way of Shanghai, Hong Kong, Bangkok, and Rangoon. When the planes landed at Shanghai they had completed the first flight across the Pacific Ocean. The weather held relatively fair, but the flight was interrupted by a couple of forced landings. BOSTON'S engine overheated and forced her to land on the China Sea, but she got back into the air very quickly. CHICAGO burned out her engine off Hue, Viet Nam, landed at sea, and had to install a replacement engine brought from Saigon by a U.S. Navy destroyer. On June 26th they reached Calcutta, where they were converted to wheel landing gear and were checked for the next division of the flight.

They left Calcutta July 1st on the Fourth Division of ten hops to Istanbul, Turkey. Although these flights passed over some of the most primitive countries on earth, they were made with no problems. Here, as throughout the flight, a simple compass navigation system got the flyers to each successive landing place with pinpoint accuracy. The World Cruisers had no modern navigational aids, not even radios, and the maps were not very good, so the flyers had to be superb navigators. They landed at Istanbul, July 10th, and were given a handsome reception, ending with a four hour formal dinner.

On July 12th the planes left Istanbul on the Fifth Division flight across Europe to London. The flight over the Balkans and Austria was uneventful, but they were welcomed at Paris by a large and enthusiastic crowd. The Londoners gave them just as great a reception when they touched down there on July 16th. Time was short, as the fall storm season was approaching. The flyers had to overhaul their planes quickly and convert them back to pontoon landing gear for the long flights across the North Atlantic.

The Sixth Division was a series of 14 hops from London to Washington, D. C. They arrived at Brough, England, on July 17th, and used the shops at the British naval base for repair work on the planes. The weather of August 2nd contributed to a second disaster, this one between Scotland and Iceland on the stormy North Atlantic. BOSTON made a forced landing and was destroyed in a handling accident during a rescue attempt. BOSTON'S crew hurried on to Labrador to pick up the World Cruiser trainer which

World Cruiser NEW ORLEANS when she was taken out of the Los Angeles County Museum of Natural History in 1944 to be exhibited with a Douglas C-54 transport at Clover Field, Santa Monica. (Los Angeles County Museum of Natural History photo)



World Cruiser NEW ORLEANS as she was exhibited at the Los Angeles County Museum of Natural History, and shown as she was being dismantled for loan to the Air Force Museum (U.S. Air Force photo)

they named BOSTON II, in which they would complete the flight. CHICAGO and NEW ORLEANS, the only planes to complete the flight, made it through Iceland, Greenland, Labrador, and to Boston, where wheels replaced pontoons for the rest of the flight, and where the crew received their first welcome home. President Coolidge and the rest of Washington greeted the flyers enthusiastically when they landed there on September 9th.

The Last Division flights, from Washington back to Seattle via Dayton, Chicago, El Paso, San Diego, Santa Monica, and San Francisco in 15 hops, began on September 13th. This triumphal flight across the United States was described by the flyers as a series of grand parties interspersed with easy cross-country flights. There was something special about the party at Santa Monica on September 25, 1924, because it marked the actual circumnavigation of the world by air for the first time. The flight officially ended at Seattle on September 28th.

The flight had taken 175 days—practically six months—and had covered 27,553 miles in 371 flying hours, for an average flying speed of just seventy two miles per hour. When Lt. Smith was asked how he felt about the flight he pretty well summed it up: "I cannot recommend it as a pleasure trip."

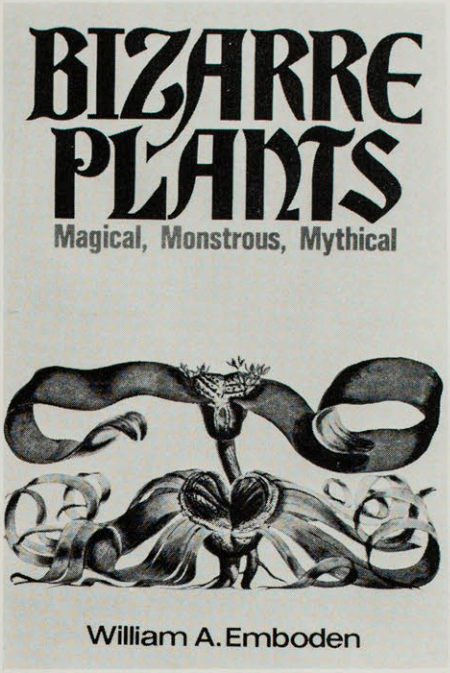
Careful post-flight inspection of the planes showed they were in perfect flying condition, and there was no reason they couldn't be serviced and take off on a repeat of the trip. They flew back across the country to the Air Service base at Dayton, Ohio, but because of their historic significance, they flew very little after that. Two of the Douglas World Cruisers still exist: The CHICAGO is in the Smithsonian Museum's aviation collection. The NEW ORLEANS is exhibited in the Air Force Museum, Dayton, Ohio, since the Natural History Museum of Los Angeles County, which owns her, has no adequate place to show the plane.

This first Round-the-World Flight gave a huge boost to long-range commercial aviation, because of the safe return of all the flyers. It also made the reputation of the Douglas Aircraft Company as a builder of successful long-range transport aircraft.

The next flight around the world was made by Wiley Post and Harold Gatty in 1931, and in the comfort of a cabin plane. Today's jet transport could repeat the first flight in comfort at an average speed of three hundred miles-per-hour including stops, and fly it in ninety to one hundred hours elapsed time, or just four days. This is a measure of the remarkable progress in aviation in the fifty years since the first Flight Round-the-World was made by the pioneers of 1924.

Konrad F. Schreier Jr. is a professional technological historian, writer, lecturer, and consultant. He is a Research Associate, History Division, at the Natural History Museum of Los Angeles County, and has written a number of articles for TERRA.

Book Review



Bizarre Plants by William A. Emboden (MacMillan Publishing Co., Inc. New York 1974. 214 pages. $10.95)

Bizarre Plants by Dr. William A. Emboden is a book intended to titillate, tantalize, and incidentally teach the layman some remarkable facts about strange and exotic plants. And since the author writes with the wit of Lamb and the grace of DeQuincy, the reader is impelled to wonder, chuckle, and admire alternately.

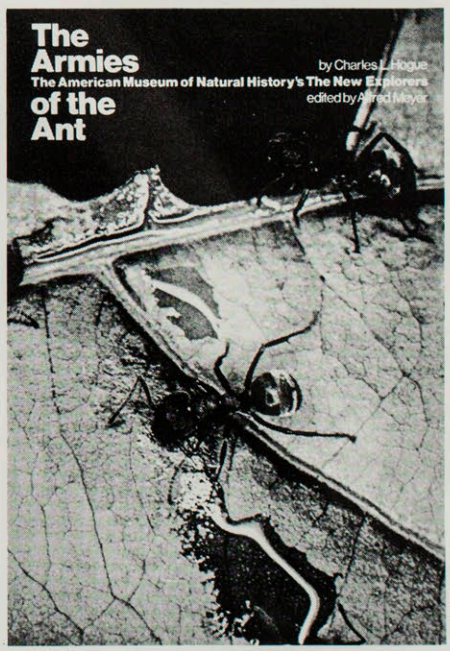
Botanically speaking, never has so much information been spread out so palatably. The technical has been spiced with history, literature, folklore, and myth. Winsome headings include "Satan's Simples-Herbs of Black Magic," "Herbs of Grace-Witches and Warlocks Undone," and "Fungal Fantasies." Here we learn that the friendly garnish, parsley, has been a symbol of death, found as decoration on Grecian tombs; that gentle sweet basil, if given to someone to inhale, would induce the breeding of scorpions in their brain; and that golden flowers, like marigolds, were excellent to anoint witches.

The book is full of the erotica that makes the plants about which he writes bizarre. There is *Geaster fornicatus,* a fungus simulating copulation; and *Phallus impudicus,* a fungus so overtly phallic that a Victorian lady, Aunt Etty, white-gloved and determined to "protect the morals of our maidens," knocked down the plants with a bat and burned them. The author writes of the tubers of orchids whose resemblance to male testes has led to the belief that they are potent aphrodisiacs. And one suspects that the enormous public interest in the flowering of the monstrous plant, *Amorphophallus titanum,* in the New York Botanical Gardens in 1937, as described by Dr. Emboden, was at least partially because of its erotic appearance.

Chapters about the dragon's blood tree, the fabulous coco-de-mer, the ginseng wonders, orchids in witchcraft and medicine, and the mandrake have been expanded and implemented from articles Dr. Emboden wrote about them in TERRA. And as an expert in the chemistry and pharmacology of plants, Dr. Emboden has included recent information on how these plants are used in medicine today.

Having read this book, I am first going to cure myself of a number of ills. After which I shall pick some black hellebore, *(Helleborus niger)* from my garden, reduce it to a powder and render myself invisible.

Dorothy Halle Seligman


The Armies of the Ant
by Charles L. Hogue
The American Museum of Natural History's The New Explorers
edited by Alfred Meyer

The Armies of the Ant by Charles L. Hogue. Edited by Alfred Meyer (World Publishing Times Mirror 234 pages. $12.50)

The text has the immediacy of a face-to-face conversation. The photos pack the wallop of the best picture spreads in the old LIFE magazine. In short, Dr. Hogue's book "The Armies of the Ant," makes his stay in the Costa Rican rain forest as readable as a best-selling novel. If this isn't enough to entice you, consider the enormous amount of information about the locale and its life crammed into a little over two hundred pages.

A brief preview of this content appeared in the 1972 spring issue of TERRA, under the title *Focus on Rincon.* It was an outstanding article. The expedition behind the book and a companion motion picture were sponsored by the American Museum of Natural History and Alan Lansburg productions.

For several months Dr. Hogue lived an almost solitary life in one of America's last virgin rain forests, the Rincon de Osa peninsula in western Costa Rica. On tape and with camera he recorded physical, emotional and intellectual responses to his surroundings. The layering vegetation, the omnipresent insect life, the climate, and, above all, the life cycle of the ants which furnish the book its title, were all given extensive scrutiny.

Highlights include a poetic chapter on the ambience of the tropical night, and a fascinating account of life in a colony of army ants. Nothing seems real in the forest. Insects glow, decayed trees luminesce, ants bivouac and march on patrol like invading Huns. Frogs, snakes and butterflies live and die, eat and are eaten in a gaudy display of kaleidoscopic color.

In summary, the book adds up to a probing analysis of the inner life of the rain forest and its complex ecological balances. Almost one hundred color photos, many of double-page size, contribute to the total effect. It should appeal to you if you're a natural history buff, young or old. After the first ten pages you're sure to be scratching and sweating along with Dr. Hogue, but in the comfort of your own armchair.

Harry J. Pack

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